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Health System and Sustainable Development: Health Sector Visioning 2035
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Message from the Executive Director

The number of scientific presentations at EPHA’s annual conferences is increasing over the last couple of years. This year, a total of 412 scientific papers were submitted for consideration at the 26th annual conference of the association. Of these, 148 papers and 254 abstracts have been accepted for oral and poster presentations respectively. The total number of papers submitted this year is by two folds greater compared to 2010.

As is done every year, this year also EPHA has involved its members in the selection process of the most appropriate and eligible papers for the conference in different categories. The scientific committee has played a major role in the selection process and organizing the scientific program accordingly. The Committee, consisting of members from the Advisory Council, the Executive Board and the Secretariat oversees the overall program and coordinate review process based on EPHA’s guideline. The evaluation process is usually done by independent reviewers drawn from members as well as research and academic institutions. Abstracts selected unanimously are sent for evaluation where they are critically reviewed based on the relevance, clarity, scientific merit and methodology, among other parameters.

In this year conference, a wide range of topics will be addressed through oral and poster presentations. EPHA would like to thank all partners and collaborators for choosing EPHA’s platform to disseminate evidence based information to the scientific community and policy/decision makers thereby improving the national health development efforts. Our heartfelt thanks also go to the reviewers panel, scientific committee members for their continued support and patience to review and coordinate the selection process and finalize the program in its present form. In addition, we would like to appreciate all panelists, moderators and facilitators for their valuable time and positive response to take part in the discussions as requested. Furthermore, we would like to sincerely appreciate EPHA staff members who have been following up given tasks and assignments with commitment and dedication to ensure that things are done on time as planned without compromising quality.

Last but not least, I would like to take this opportunity to thank the Amhara Regional Government for allowing us to conduct this year’s conference in the Regional State Assembly Hall by Lake Tana, gracious and attractive premises that will make the event colorful and impressive. I Hope this year’s deliberations would be memorable and entertaining in the historic place of Bahir Dar.

Hailegnaw Eshete (MS, MPH, PhD)
Oral Presentations
Determinants of Occupational Injury among the Condominium House Construction Workers of Addis Ababa City, Ethiopia 2013, Unmatched Case Control Study. *Siros Shire, MPH, Epidemiology and Biostatistics unit, College of Health Science, Jig-Jiga University; Abera Kame, PhD., School of Public Health, Addis Ababa University.*

**Background:** Occupational injuries constitute global public health burden from which millions of workers die each year from unintentional work related accidents and causing economic loss. The construction industry has been identified as one of the hazardous industries in developing countries including Ethiopia; a significant number of people are working in the industry.

**Objective of the study:** To assess the determinants of occupational injury among condominium house construction workers in Addis Ababa city, Ethiopia.

**Methods:** Unmatched case control study was done among 576 condominium house construction workers (192 cases and 384 controls). Survey was conducted to ascertain occupational injury status within three month period. Data was collected using pretested and structured questionnaire by trained data collectors. Odds ratio with 95% confidence interval was used to assess level of significance.

**Results:** Health and safety information access (AOR 1.62, 95%CI (1.02, 2.59)), Use of personal protective equipment (AOR 2.14, 95%CI (1.26, 3.93)), Job satisfaction (AOR 2.46, 95%CI (1.21, 4.97)), Sleeping disturbance (AOR 8.67, 95%CI (5.30, 14.20)), Cigarette smoking (AOR2.38, 95%CI (1.45, 3.89)), Alcohol consumption (AOR 2.15, 95%CI (1.38,3.34)) were significant predictors of occupational injury.

**Conclusion:** Absence of health and information access from any media before and during work, not use of personal protective equipment during work and the presence of sleep disturbance increased the risk of occupational injury. So, Safety training of workers and continuous monitoring of working site can play an important role in reducing occupational injury.

**Keyword:** Occupational injury, Socio demographic factors, Environmental factors, Behavioral factors
Heavy Metals Pollution of Soil around Solid Waste Disposal site in Adama (Naziret) City Eastern Ethiopia. Asmamaw Abera Kelbedu, BSc in Environmental Health and MSc in Environmental Technology, Lecturer and Researcher at Debre Berhan University Department of Public Health.

The uncontrolled disposal of solid waste causes different adverse Public Health and Environmental impact. One of the serious problems is the leaching or migration of heavy metals to the nearest environmental compartment. Heavy metals have a great Public health disaster due to their toxicity and accumulative behavior in food chain. The study was analysis the heavy metal contents, public health risk and extent of soil pollution nearby Adama (Naziret) city solid waste disposal site, Eastern Ethiopia. The sampling location was selected by transect from agricultural land nearby disposal sites toward gully erosion. The depth-specific soil samples were taken at the depth of 5-20cm and 20-30cm. Stainless steel materials were used to collect soil sample. The air dried soil samples sieved to pass 2mm and subsample of <2mm were used for pH, EC, CEC, soil porosity and heavy metals concentration analysis. The soil pollution was determined by using Pb, Cr and Cd contents; pollution status described by geo-accumulation index for each metal. The concentration against depth indicated that Cd, Cr and Pb are increase in Qobbo Luxo disposal site and Cd and Pb are increases in Jogo Dedo disposal site but Cd is not. The mobility of metals depends on pH of the soil. The soil is unpolluted to moderately polluted for all three heavy metals in Qobbo Luxo site based on geo accumulation indices classes but Jogo Dedo site shows unpolluted to moderately polluted by Cr and Pb but moderately polluted by Cd. Study demonstrates agricultural land nearby disposal sites indicate contamination of soil by heavy metal. This shows public health risks of having heavy metals through food chain and possibly leaching to water sources. The possible recommendation remedial action should take place and installation of leachate collection as well as establishing of buffer zone necessary.

Keywords: Solid waste; Heavy metals; Geo-accumulation index; Soil; Adama
Current Level and Correlates of Traditional Cooking Energy Sources Utilization in Urban Settings in the Context of Climate Change and Health, Northwest Ethiopia: A Case of Debre Markos Town. Zewdu Dognew (BSc, MPH); Kamlachew Geremew (B.A, MSO, MPH); Molla Gedewaw (MD, MPH), Debre Markos University, College of Medicine and Health Science, Department of Public Health.

**Introduction:** Traditional biomass has been the major source of cooking energy for major segment of Ethiopian population for thousands of years. Cognizant of this energy poverty, the Government of Ethiopia has been spending huge sum of money to increase hydroelectric power generating stations.

**Objective:** To assess current levels and correlates of traditional cooking energy sources utilization.

**Methods:** A community based cross-sectional study was conducted employing both quantitative and qualitative approaches on systematically selected 423 households for quantitative and purposively selected 20 people for qualitative parts. SPSS version 16 for windows was used to analyze the quantitative data. Logistic regression was fitted to assess possible associations and its strength was measured using odds ratio at 95% CI. Qualitative data were analyzed thematically.

**Result:** The study indicated that 95% of households still use traditional biomass for cooking. Those who were less knowledgeable about negative health and environmental effects of traditional cooking energy sources were seven and six times more likely to utilize them compared with those who were knowledgeable (AOR (95% CI) = 7.56 (1.635, 34.926), AOR (95% CI) = 6.68 (1.80, 24.385), resp.). The most outstanding finding of this study was that people use traditional energy for cooking mainly due to lack of the knowledge and their beliefs about food prepared using traditional energy. That means “...people still believe that food cooked with charcoal is believed to taste delicious than cooked with other means.”

**Conclusion:** The majority of households use traditional biomass for cooking due to lack of knowledge and belief. Therefore, mechanisms should be designed to promote electric energy and to teach the public about health effects of traditional cooking energy source.

**Keywords:** Traditional, Energy, Sources, utilization, Climate Change

Worku Dugassa

Background: The significance of hygiene and sanitation is recognized in the United Nations’ Millennium Development Goals. Ethiopia has made tremendous progress toward universal WASH access in the past decade, but still significant challenges with regard to access to WSH remains unaddressed which varies from place to place. Therefore targeting hygiene and sanitation is vital for improving the health of the population at large.

Objective: This study aimed to assess the status of Water supply, sanitation and hygiene of households in Welenchiti Town, Boset woreda, East Shoa Zone, Ethiopia, 2014.

Methods: A cross sectional study was conducted. The study subjects were randomly selected 423 households by systematic random sampling. Data were collected through interview and observation checklist. Adjusted odds ratio with 95% confidence interval was calculated to indicate statistical association at 5% significance level.

Results: Average consumption of water by households, majority 312 (74.00%) of them got less than 20 liters per capita per day. From a total of 422 households assessed for presence of excreta disposal systems, majority 375(88.90%) reported that they have latrine or toilet facilities. The study also revealed that, only 126 (33.60%) respondents washed their hands after defecation with soap and water. Majority of households, 294(69.70%) disposed their solid wastes in open dump outside the yard. The main reasons for not having latrines are lack of space (59.60%) and costly to construct (40.40%). Those households who had no latrine availability (AOR=2.92, 95% CI=1.37-6.22, P=0.01), water supply less than 20 liters per person per day (AOR=2.51, 95% CI=1.07-5.87, P=0.03), no hand washing practices after defecation (AOR=2.60, 95% CI=1.10-6.14, P=0.03) were more likely to have diarrhea in last two weeks.

Conclusion: Based on the key indicators addressed in this study, access to water, sanitation and hygiene is lower than that of required standard.

Recommendation: Health-workers and local authorities must pay special emphasis to improve these conditions.

Keywords: Water Supply, Sanitation and hand Hygiene

Introduction: Municipal waste is produced as a result of economical productivity and consumption. It includes nonhazardous wastes from households, commercial establishments, institutions, markets, and industries. Municipal solid waste handling and disposal is a growing environmental and public health concern. There is no adequate credible evidence on workers occupational health practices and factors affecting the practice of waste handlers in Addis Ababa which help for designing strategies to address the problem for both government and non-government organizations.

Objective: The objective of this study is to assess knowledge, attitude and practice on prevention of occupational risks and associated factors among solid waste collectors in Lideta sub-city, A.A.

Methods: A cross sectional quantitative study was employed to assess knowledge, attitude, and practice and associated factors on occupational health risks among solid waste collectors in Lideta sub-city Addis Ababa from March to April 2013. All 427 solid waste collectors found in Lideta sub-city are included in the study. Structured pretested questionnaire and observational checklist has been used for data collection. The data was entered, cleaned, edited and analyzed by using epi info 3.5.1 and spss 16 version statistics software.

Results: The response rate of this study was 94.4% and female respondents accounted 69.7%. The median age of the study subjects was 35 years (ranging from 17 to 65 years). 64% of study participants had good knowledge on preventing occupational health risks. 76.4% of solid waste collectors had good attitude and only 8.9% had good practice on preventing occupational health risks. Job dissatisfaction is statistically significant factor for failing to have good practice among Lideta sub-city solid waste collectors.

Conclusion: The magnitude of having good practice on preventing occupational health risks among solid waste collectors in Lideta sub city is very low. So, implementation of basic occupational health services with provision of personal protective equipment and supervising solid waste collectors on appropriate utilization is advisable.
The Paradox of Urban Dwelling and Diet Diversity in Ethiopia: Evidence from Analysis of the 2011 Welfare Monitoring Survey (WMS) Data. Abdillahi (B.Sc, MPH)\textsuperscript{1}, Garumma Tolu Fejista (B.Sc, MPH)\textsuperscript{1}, Beyene Wondafarash (MD, M.Sc)\textsuperscript{1}, Jennifer Coates (PhD)\textsuperscript{2} \textsuperscript{1} Jimma University, College of Public Health and Medical Sciences \textsuperscript{2} Tufts University, Friedman School of Nutrition, Boston

**Background:** Dietary diversity has been considered a potential 'proxy' indicator to reflect nutrient adequacy. In developing countries where people often share food from a common bowl, dietary diversity, food variety and consumption of animal source foods are indicators commonly used to assess dietary intake.

**Objective:** This study was aimed to identify predictors of household dietary diversity (HHDD) in Ethiopia.

**Methods:** A secondary data from 28,032 households, sourced from welfare monitoring survey (WMS) data set was analyzed. Structured questionnaire was used to collect socio demographic, economic and dietary data. The respondents were asked to report number of days in the past week they consumed the food items listed on the food frequency questionnaire. A Dietary Diversity Score (DDS) was constructed after the food items were grouped into six groups according to the My Pyramid classification for healthy eating and a consumer was defined. Mean DDS was reported and multiple logistic regression analysis was used to identify predictors for HHDD. The statistical significance was determined by using a $P$ value $< 0.05$ as a cutoff point. All the analysis was performed with SPSS version 20.

**Result:** A total of 27,695 households were involved in the study and 19,016 (67.9%) of the households have low DDS. Cereals were the mainly consumed (95.1%) food groups in the households. Fruits were less consumed (26.9%) than the other food groups in the one week period. The analysis showed that, wealth index of the middle and higher category and engaging in farming activity were positively associated with higher HHDDS while urban dwelling and experiencing any kind of disaster were negatively associated with having higher HHDDS.

**Conclusion:** Educating the public more about benefits of consuming fruits alongside increasing the availability of the products is important and strengthening strategies that help people increase their income will also have a direct effect to help people diversify their diet.
Survival Status and Predictors of Mortality in Severely Malnourished Children Admitted to Jimma University Specialized Hospital From 2010-2012, Jimma, Ethiopia: A Retrospective Longitudinal Study. Habtemu Jarso, MPH, Department of Epidemiology, College of Public Health and Medical Sciences, Jimma University; Abdulbalik Workicho, MPH, Department of Epidemiology, College of Public Health and Medical Sciences, Jimma University; Fessahaye Alemseged, MD, MPH, Department of Epidemiology, College of Public Health and Medical Sciences, Jimma University.

Background: Although community based treatment of severe acute malnutrition has been advocated for in recent years, facility based treatment of severe acute malnutrition is still required. Therefore, information on the treatment outcomes of malnutrition and potential predictors of mortality among severely malnourished children admitted to hospitals is critical for the improvement of quality care. Thus, the aim of this study was to assess survival status and predictors of mortality in severely malnourished children admitted to Jimma University Specialized Hospital from September 11, 2010 to September 10, 2012.

Methods: Retrospective longitudinal study was conducted at Jimma University Specialized Hospital. Primary data were collected from September 11, 2010 to September 10, 2012 whereas secondary data were collected from February 20, 2013 to March 22, 2013. Data of 947 severely malnourished children admitted to the hospital during the study period whose cards were found were reviewed. Data were analyzed using SPSS version 16 for windows. Bivariate and multivariable analyses were performed by Kaplan-Meier and Cox regression.

Result: A total of 947 children were enrolled into the study. A cure (improvement), death and abscond rate were 77.8%, 9.3% and 12.9% respectively. The median duration from admission to death was 7 days. The average length of stay in the hospital and average weight gain were 17.4 days and 10.4 g/kg/day respectively. The main predictors of earlier hospital deaths were age less than 24 months (AHR = 1.9, 95% CI [1.2-2.9]), hypothermia (AHR = 3.0, 95% CI [1.4-6.6]), impaired consciousness level (AHR = 2.6, 95% CI [1.5-4.5]), dehydration (AHR = 2.3, 95% CI [1.3-4.0]), palmar pallor (AHR = 2.1, 95% CI [1.3-3.3]) and co-morbidity complication at admission (AHR=3.7, 95% CI [1.9-7.2]).

Conclusion: The treatment outcomes (improvement rate, death rate, average length of stay in the hospital and average weight gain) were better than most reports in the literatures and in agreement with minimum international standard set for management of severe acute malnutrition. Any intervention to further reduce earlier deaths needs to focus on children with the main predictors identified in this study.

Key terms: survival status, predictors of mortality, severe malnutrition, children, hospital
Level and Determinants of Food Insecurity in East and West Gojjam Zones of Amhara Region, Ethiopia: A Community Based Comparative Cross-Sectional Study. Achenaf Mehinaz, MPH, College of Medicine and Health Science, Mada Walahu University; Alemayehu Worku, PhD; Adera Kumi, PhD; School of Public Health College of Health Science, Addis Ababa University, Ethiopia

Background: Food insecurity remains highly prevalent in developing countries and over the past two decades, it has increasingly been recognized as a serious public health problem including Ethiopia. An emerging body of literatures link food insecurity to a range of negative health outcomes and causes of a decline in productivity. The objective of the present study was to determine the level and determinants of food insecurity in East and West Gojjam zones of Amhara Region, Ethiopia.

Methods: Community based comparative cross-sectional study design was used from 24 May 2013- 20 July 2013. Multistage sampling technique was implemented. A total of 4110 randomly selected households in two distinct populations were approached to be included in the study. The binary logistic regression model was used to assess factors associated with food insecurity.

Results: From the total 4110 households, 3964 (96.45 %) gave complete responses. The total prevalence of food insecurity was 55.3% (95% CI: 53.8, 56.8). Comparing food insecurity levels between the two zones, nearly sixty percent, 59.2% (95% CI: 57%, 61.4%) of the East Gojjam and 51.3% (95% CI: 49.1%, 53.5) of West Gojjam households were food insecure. Illiterate mothers (AOR = 1.319, 95% CI: 1.054, 1.649), privately unemployed mothers (AOR = 5.904, 95% CI: 1.244, 28.018), household monthly income quartiles, 1st (80 - 400 EB) (AOR = 3.110, 95% CI: 2.504, 3.862), 2nd (403 - 560 EB) (AOR = 2.524, 95% CI: 2.008, 3.172) and 3rd (561 - 800 EB) (AOR = 1.777, 95% CI: 1.451, 2.176) were the significant socio-demographic determinants. Rural residential area (AOR = 2.211, 95% CI: 1.742, 3.806), highland agroecology (AOR = 2.847, 95% CI: 1.421, 2.402) and lack of livestock (AOR = 1.581, 95% CI: 1.296, 1.929), were environmental significant determinants.

Conclusion: Food insecurity is highly prevalent in both study areas and there are different determinants. Intervention strategies should give emphasis to women education, diversified income generating opportunities and for each agroecological zone mixed agriculture strategy.

Keywords: Food security, food insecurity, Gojjam, Amhara, Ethiopia

Better macro and micro nutrient status and their adequate intake of the athletes have great role in balancing losses associated with strenuous exercise, then for better performance. The aim of the study was to determine anemia, iron, folate and vitamin B₁₂ status of Ethiopian professional athletes and to find if any relation between body biochemical status and their performance. A cross sectional study was conducted using a convenient sample of 101 male and female Ethiopian professional athletes of different distance categories in the period of February to April 2014. Biochemical samples, performance data, 24 hour dietary diversity and weekly food frequency were collected. The low, medium, and high dietary diversity tertiles were 36.1, 60.9 and 3.3% respectively. The mean ± SD of dietary diversity was 5.44 ± 1.8. Prevalence of iron overload (Serum ferritin >200 ng/ml) was 11%, whereas that of anemia and iron deficiency was 3% and 15%, respectively. There was no iron deficiency anemia case in the study. This finding was not agreed with an earlier study conducted on Ethiopian women of reproductive age by haider, (2010). Which the study reported that, 50.1% prevalence of iron deficiency (<50µg/l) and absence of iron overload. The prevalence of moderate folate deficiency was 20.8%. The mean serum vitamin B₁₂ concentration was 561±231 pg/ml and there was no deficiency for this nutrient (>210pg/ml). The present vitamin B₁₂ status was inconsistent with a study has done on vitamin B₁₂ level of recreational Germany endurance Athletes which was reported that the median with (Q1, Q3) level was 343 (285–431) respectively and prevalence of vitamin B₁₂ deficiency (<211 pg/ml) was 10% (Herrmann et al., 2005). The iron and folate status of male athletes was significantly different by running-distance categories. In contrast, such difference was absent for female athletes. Performance of the athletes was associated with their Red blood cell count (RBC) at (p=0.03). The high performer athletes exhibited better micronutrient status and hematological variables than their counter parts. However, the RBC of the athletes was the only parameter whose association was statistically significant. The observed gender difference in the association of running-distance category with iron and folate in this study needs further investigation. Given the 11% iron overload in the present study; there should be awareness creation activities for the athletics federation, the athletes and the coaches in order not to aggravate the present overload. Prescription of supplements such as iron-folate, multivitamins and minerals were based on broad spectrum of suspecting deficiency in the athletes. But these prescriptions should be based on clinical laboratory testing to turn back trace element toxicity and other related health complications.

Keywords: RBC, Hematological indices, Ferritin, Food frequency, Dietary diversity, Athletes.
Nutritional Status and its Effect on Treatment Outcome among Patients Taking HAART in Ethiopia: Cohort Study. Sadikalmahdi Hussen, MSc, Department of Pharmacy, Jimma University; Tefra Belachew, PhD, Department of Population Health, Jimma University; Nezif Hussen, MSc, Department of Pharmacy, Jimma University.

Background: Malnutrition and human immune deficiency virus form a vicious cycle and ultimately aim at reducing the immunity of the patient. In countries where food insecurity is prevalent like Ethiopia, the impact of nutritional status at the start of highly active anti-retroviral therapy on treatment outcome is not yet established. The objective of this study was determine the impact of nutritional status at the start of highly active anti-retroviral therapy on treatment outcomes among patients taking HAART at Jimma University specialized Hospital.

Methods: A retrospective cohort study involving 340 adults who started highly active anti-retroviral therapy between January 2006 to December 2011 at Jimma University Specialized Hospital was carried out. The patients have been clinically followed for the past two years at the time of survey. Data were extracted from paper based medical charts by trained data collectors from January 30 to February 28, 2014 using data collection format. Data were entered into Epi data 3.1 and then exported to SPSS for windows version 21. Predictors of CD4 change were identified using multivariable linear regression analyses. Time to an event [death, opportunistic infections] was estimated by Kaplan-Meier and predictors of mortality and opportunistic infection was identified by Cox proportional hazard model. Log-rank test was used to compare the Kaplan-Meier curves.

Results: A total of 340 patients were included in the study (170 patients from both malnourished and well-nourished group). The patients were followed for 2 years and the median survival time was 730 days. There were a total of 42 deaths during the follow-up period. Twenty five [59.5%] deaths were from malnourished group, while the rest 17[40.5%] were from well-nourished group. Eighty three [24.4%] patients developed new opportunistic infection after HAART initiation. Fifty five [66.3%] patients were from malnourished group. Age of the patients was significant predictor of immunologic outcome at 6,12,18,24 months adjusting for other factors. Baseline CD4 count was significant predictor of CD4 change at 12 months. Sex was significant predictor of immunologic outcome at 18 and 24 months after HAART initiation. At 24th month baseline HAART and marital status predicts immunologic outcome. Malnourished patients were associated with lower increase in CD4 count. Age greater than 50 years of age, Tenofovir based regimen, Zidovudine based regimen, taking fluconazole and CD4 less than 200 were associated with greater risk of death. Malnourished patients were associated with high risk of death compared to well nourished patients. Malnutrition, Stavudine based regimen, Zidovudine based regimen and taking isoniazid prophylaxis were associated with greater risk of opportunistic infections.

Conclusions: Malnourished patients tend to have lower increase in CD4 at 6,12,18,24 months compared to well-nourished patients. Malnutrition was associated with greater risk of early death and significant predictor of opportunistic infections among people taking HAART.

Adekwe

Seyoum, MS, Bureau of Women, Children and Youth Affairs, Amhara Region, Bahir Dar.

The purpose of this study is to analyze the demographic transition process and the possibility of reaping the demographic dividend, as well as to suggest mechanisms to facilitate this opportunity. The study has been done by the application of Spectrum Policy Suit Model for projection of demographic and socio-economic situations of the region using high fertility decline scenario (2.1) and low fertility decline scenario (3.74) by the year 2037. The main sources of data are census reports (1994 and 2007), National Labor Force Surveys (1999, 2005, and 2013), Ethiopia Demographic and Health Surveys (2000, 2005, and 2011), Inter-censal Population Survey (2012), and research studies at national, regional and global levels are also consulted to project besides policy and strategy documents and their respective implementation reports. The result of the study reveal that there will be a significant change in the age structure of the Region population despite the fact that, there was no significant change in the age structures of the Region population over the past 13 years (1994-2007). Population aged 0-14 will be declined from 42% in 2007 to 20% and 36% in 2037 under fast and slow fertility decline, respectively. In 2037, population at old ages (above 64 years) will constitute 5 percent from 4.1 percent for both fertility declines. Population aged 15-64 will constitute 66% (fast fertility decline) and 60% (slow fertility decline) of the total population from 54.4% in 2007. This in turn results in the decline of the age dependency ratio by half from its level of 0.87 in 1994 to 0.51 by 2037, under the fast fertility decline assumption. On the other hand, the age dependency ratio will not show a significant decline and remains at 0.67 without notably easing out the age dependency burden under the slow fertility scenario. The average new jobs required annually for the coming years is 445,187 new jobs under the fast declining fertility scenario and 494,370 new jobs under the slow declining scenario, showing an additional 49,183 new jobs annually under slow fertility decline assumption. All the findings show that there is less burden and more opportunities in a fast fertility decline scenario than the slow fertility decline scenario. The Amhara National Regional State position in capturing the demographic dividend is not that far from reality, but requires aggressive and timely measures in both demographic and development areas. The possible opportunity of the dividend can be captured if and only if proactive actions are taken in areas other than population (while expediting the rural fertility transition simultaneously). Policies and programs in countries at incipient stages of the demographic transition must focus on the needs, aspirations and opportunities for young people in order to capture the upcoming potential and transform it into sustainable development.
Predictors for Willingness to Participate in Health Insurance Services among the Community of Jimma Town, Southwest Ethiopia. Ashopre Molla (BSN, MSN), Department of Nursing, Jimma University.

Background Information: Health insurance is insurance against the risk of incurring medical expenses among individuals. Health insurance schemes are an increasingly recognized factor as a tool to finance health care provision in low-income countries. Given the high latent demand from people for health care services of a good quality and the extreme underutilization of health services in several countries, it has been argued that social health insurance may improve access to acceptable quality health care. The main objective of this study was to determine the demand of health-insurance among Jimma town community and to identify those factors that influence on the demand in Jimma town, southwest Ethiopia.

Methods: A community based cross sectional quantitative study was conducted from December 1 to December 31, 2012. Adapted questionnaire were used to collect data through interview. The data were entered into statistical package for social sciences (SPSS) version 16.0 after editing and cleaning for inconsistencies and completeness. Binary logistic regression was done to identify the predictors for the awareness and demand of health insurance and to know the predictor of the demand among categorical variables.

Results: Five hundred eleven (68.96%) of the participants have awareness about insurance and 459 (61.94%) of them gave explanation about what insurance is. 390 of the respondents described about the benefits of having health insurance. 74 participants responded that they were benefiting from any health insurance services. Sex and educational status of the head of the household, the level of expenditure for the treatment of illnesses, the presence of hypertension and DM, age of the family member, the number of facilities visited and presence of chronic illnesses in the household are the independent predictors of the demand of health insurance among respondents. Half of the respondents (51.5%) responded that they want to have health insurance. The reasons of not demanding health insurance, because they feel healthy and/or there is no ill person in their family, they have understanding of getting the service by participation in health insurance is taken as a sin by their religious view; They replied that if they get such service it is considered as taking some one’s money for self which is forbidden; they have ability/financial strength of paying health care cost to their family; unable to pay or afford for the health insurance premium to be part of the service.

Conclusion: Most of the participants have awareness about insurance but they did little and/or unrelated explanation about health insurance. Significant number of participants has no awareness about the concept of insurance and its benefits. Half of the participants want to have health insurance. There is misconception about health insurance and its benefits among the study community.

Keywords: Health Insurance, Community, Demand, Awareness

Introduction: As one of those countries with an increasing ownership of the family planning agenda, Ethiopia is implementing and planning to scale up efforts to improve the current level of contraceptive prevalence. Therefore, the country needs to revitalize the knowledge on the funding gaps to address the gap and fully achieve country’s contraceptive prevalence rate of 73.3% in 2020.

Objective: It is to assess the funding gaps in Ethiopia for both family planning program and commodity costs to achieve 73.3% contraceptive prevalence rate in 2020.

Methods: The analysis was done using Gather, AnalyzeandPlan (GAP) tool developed by Health Policy Project. The data (inputs) used for the gap analysis were obtained from Ethiopian Demographic and Health Survey (EDHS) 2011, UN estimates and the FP2020 national target document of the Federal Ministry of Health. The output mainly focuses on projected funding gap for FP programs and projected funding gap for contraceptive commodities.

Findings: As compared to the target (73.4% of 2020), the current prevalence of country is at a faraway distance. Over all, considering the continuation of existing fund availability for the coming six years, the projected funding need for family planning program increases sharply from 275 in 2014 to 586 million US dollars in 2019. This is more than two fold of the current amount required to implement the family planning program. Specifically looking into the funding gap for contraceptives/commodities, there will be a gap of 18 million dollars in 2019 to meet the 73.3% CPR by the target year 2020 of which the contribution of the public sector is the highest.

Conclusion and Recommendation: Assuming that the current allocated budget continues to be available, huge amount of additional fund is required to achieve the 2020 national target of the contraceptive prevalence rate (73.3%). The public sector takes the lion share of the resources being invested at the present and is also expected to be the major source in the targeted period. The health sector partners have to work hard to fill the funding gap. Thus a concerted effort for the in-country and international advocacy, coordination and resource mobilization should be planned and implemented.
Assessment of Magnitude and Factors Associated with Unmet Need for Family Planning among Married Women Who are in Extended Postpartum Period in Tahtay Koraro District, Tigray Regional State, Ethiopia. Garja Embafrash (BSc, MPH/RH); Wubegzi Merkonn (BSc, MSc, PhD) "Kazanches Health Center, Addis Ababa Health Bureau, Ethiopia, School of Public Health, College of Health Sciences, Addis Ababa University, June 2014

Background: About 222 million women in developing countries had unmet need of contraception. Women in their first year of childbirth had the largest proportion of unmet need for contraception. The first year after delivery is described as an extended postpartum period and there hasn't been adequate information in this period on unmet need to inform policy and programs in Ethiopia.

Objective: To determine the magnitude and correlates of unmet need among women who are in extended postpartum in Northern Ethiopia.

Methods: A cross sectional facility based study complemented by in-depth interview of key informants was done from 1st February to March 30, 2014. A total of 409 women in the 1st year after delivery were selected. They were consecutively recruited during the mornings of data collection time according to their order of arrival during their visit. Recruitment was continued until the required sample size was obtained from each facility. For quantitative data Epi-Info version 3.5.4 software was used for data entry, and then data were exported to SPSS Version 21 software for further analysis. Summary measures are computed. Logistic regression model was used to identify factors correlates of unmet need. The transcribed and translated qualitative test data were imported into an Open Code program and coded. Then codes were categorized and thematically described.

Results: The overall unmet need for family planning was 150 (36.7%), with 121 (29.6%) for spacing and 29 (7.1%) for limiting. One hundred twenty (29.3%) women were using family planning. And 84 (70%) of them were using injectable. The commonest reasons for non-use of FP were non-menstruating since last birth 201 (69.6%), side effects 39 (13.5%) and infrequent sex 22 (7.6%). Rural residence (AOR=7.16, 95% CI 2.57-19.95), postpartum week (38-52 week; AOR=8.71, 95% CI 3.90-19.44) and low perceived risk of pregnancy (AOR=1.79, 95% CI 1.04-3.09) were significantly associated with high unmet need. Opposition from different groups of the community, low perceived risk of pregnancy, provider refusal of removal of implants and misunderstanding of FP use and side effects were additional triggering factors for unmet need.

Conclusion and Recommendation: The unmet need for family planning was high. Rural residence, increased maternal postpartum week and low perceived risk of pregnancy were associated with high unmet need. Opposition from different groups of the community and refusal of implant removal were also other factors affecting unmet need. Empowering women with knowledge of the risk of pregnancy and FP use during extended postpartum period should be enhanced. Further awareness creation should be extended to periphery at different levels of the community.
Community Home Based Care: An overview of client needs, actors and services provided in Ethiopia. Mirkarzi Woldie¹, Morankar Sudhakar², Garumma Tolu Feyissa³, Caroline Aantje⁴, Tim Quinlan⁴ ¹Department of Health Services Management, Jimma University, Jimma, Ethiopia ²Department of Health Education and Behavioural Sciences, Jimma University, Jimma, Ethiopia

**Background:** In Ethiopia, it was shown that funding levels are by far not compatible to the needs for care and support services for People Living with Human Immuno-deficiency Virus (PLHIV) and Orphaned and Vulnerable Children (OVC). The extent of the discrepancy between the client needs and services provided for this segment of the population has not been documented sufficiently.

**Objectives:** To examine the nature of client needs, actors and services actually provided for PLHIV and OVC in Ethiopia.

**Methods:** A case study of the Ethiopian community care programs was carried out using multiple methods of data collection as part of a multi-country research of four countries (Malawi, Zimbabwe and South Africa). Three programs (cases) providing care and support services throughout the country were studied. The data collection instruments (in-depth interview, focus group discussion (FGD) and mapping exercise guides and semi-structured questionnaire) were initially developed for the multi-country research and latter contextualized to the Ethiopian case. A total of 35 in-depth interviews, 9 focus group discussions, 60 guided interviews, and 3 community mapping exercises were carried out. Analysis was conducted using the thematic framework approach with coding and mapping of the transcripts in the ATLAS.ti version 6.2.27.

**Results:** The expansion of ART has reduced the number of bed-ridden PLHIV in need of home based nursing care. Currently, inadequate access to food and lack of income to cover health care and other expenses are the major concerns of PLHIV in Ethiopia. Community Home Based Care (CHBC) in Ethiopia can be categorised into two types; Clinical and Non-clinical. Non-clinical care (psychosocial, economic, home nursing care, material, food, and other social supports) is mainly provided by non-governmental care giving organizations. Clinical care is provided mainly by government health facilities and includes services such as early detection and treatment for opportunistic infections (OIs), ART services, and PMTCT.

**Conclusion:** The constellation of services provided for PLHIV reasonably matches their needs. All stakeholders involved in the provision of care and support services to PLHIV should take a balanced share of the burden through stringent coordination.

**Keywords:** caregiver, community home based care, patient needs, service provision, care and support
Assessment of Health and Socio-Demographic Problems of Early Marriage among Ever Married Women in Kersa District, East Ethiopia. Wondimye Ashengefi, MSc, College of Health and Medical Sciences, Department of Public Health, Haramaya University, Ethiopia.

Introduction: Marriage is a social institution that unites people in mutual dependence for the purpose of forming and maintaining a family. It is legally considered if adolescents marry below the age of 18. The EDHS 2011 reports that 63% of girls in Ethiopia are married before 18. The median age also remained at about 16.9 years for Oromiya region & 16.5 years for the nation. The median age of sexual debut for girls is also reported as low as 16 years. Early marriage associated with this early sexual debut and limited use of contraceptive methods increases the risks of unwanted pregnancy, STI/HIV infection and maternal and child morbidity. More on that physical pain during intercourse, obstetric fistula due to youthfull delivery & other complications due to pregnancy are among the many health-related problems faced by young married women. Early marriage also contributes for young married girls to miss their opportunity to go to school or for those who started schooling forced to drop out of school and are more likely to bear children during adolescence and thus cut their opportunity for a better life and employment in productive economic spheres.

The major objective of the study was to assess the health and socio-demographic problems of ever married women in Kersa district from February 15 to March 31, 2012. Specifically, the study aimed to examine the impact of early marriage on the level of autonomy and decision making, education and reproductive health condition of married adolescents in the district.

Methodology: A cross-sectional study design that combines both quantitative and qualitative research methods was applied. A sampling frame of ever married women aged 12 to 49 years was obtained from Kersa demographic surveillance center. Using the formula, \( n = \frac{Z^2 \times P \times (1-P)}{d^2} \), the sample size for the quantitative survey was 423, with confidence level of 95\%, \( d = 5\% \), \( P = 50\% \) & a non-response rate of 10\%. The sample size was then distributed among the 12 kebeles of the study area according to the proportion of ever married women aged 10 to 49 years residing in each kebele. Then the eligible woman from each kebele was selected using systematic random sampling method. In the process of the sampling procedure, more than one eligible woman from a given household was also included in the sample. Purposively selected 4 FGDs was also administered with parents (who are married men and non-sampled women in the quantitative technique), and unmarried adolescents (boys and girls separately) with 8 to 12 informant members. FGD topic guide was used to elicit issues regarding problems of early marriage. In analyzing the data, descriptive, bi-variate and multivariate statistical techniques were employed. A binary logistic regression analysis with a dependent variable category of marrying at early age or not was used using STATA version 11.

Result: Only 18.4 percent of the ever-married women were married within the legal age of marriage showing that the majority of the respondents were first married when they were neither physiologically nor psychologically ready for the union. The mean age at first marriage was 16.04 years. More than half (56\%) of the married women reported being pressured into marriage, most of the urging (74.2 \%) comes from parents or relatives. Even 60\% of the women reported that they were not informed about the wedding as well as the person they would marry before the decision was made. This indicates a serious abuse of their personal human rights. The results of multivariate analysis indicates that the likelihood of marrying at an early age is about 4 times higher to those with primary level of education as compared to those with no education (OR=3.716; \( P \leq 0.05 \)). The chance of early marrying is reduced by 82\% for those who married
their age mates as compared to those who married older husbands (OR=0.175; P≤0.05) & it is reduced by 49% to those consented for the marriage as compared to those pressured to marry (OR=0.509; P≤0.05). Women who married earliest (ages 12-14) encountered more health problems than those married between 15 – 17 years (8% versus 6%). The findings from FGDs also confirm the quantitative results and the general beliefs about the effects of early marriage on adolescents in Ethiopia, and have highlighted areas that deserve further examination.

Conclusion: The overarching issue showed in this study is a woman’s role in family & society in general implicated by having no influence or decision makings on their marriage life as well as a breach of their human rights. Regarding sexual and reproductive rights, the results of this study also reflected the low status of women in the home and the limited capacity they have to negotiate on issues related to their sexual life.

**Background:** Reduction of maternal mortality is a global priority particularly in developing countries including Ethiopia where maternal mortality ratio is one of the highest in the world. The key to reducing maternal mortality ratio and improving maternal health is increasing skilled attendance health personnel throughout pregnancy and delivery. However, delivery service is significantly lower in Amhara Region, Ethiopia. Therefore, this study aimed to assess factors affecting delivery service utilization among mothers who gave birth in the last 12 months in Sekela District, Amhara Region, Ethiopia.

**Methods:** Community-based cross-sectional study was conducted in August, 2010. Multistage sampling technique was used to select 371 participants. A pre tested and structured questionnaire was used to collect data. Bivariate and multivariate data analysis was performed using SPSS version 16.0 software.

**Results:** The study indicated that 12.1% of the mothers delivered in health facilities. Of 87.9% mothers who gave birth at home, 80.0% of them were assisted by family members and relatives. Being urban resident (AOR [95% CI] = 4.6 [1.91, 10.9]), ANC visit during last pregnancy (AOR [95% CI] = 4.26 [1.1, 16.4]), maternal education level (AOR [95%CI] =11.98 [3.36, 41.4]) and knowledge of mothers on pregnancy and delivery services (AOR [95% CI] = 2.97[1.1, 8.6]) had significant associations with institutional delivery service utilization.

**Conclusions & Recommendations:** Very low institutional delivery utilization was observed. Majority of the births at home were assisted by family members and relatives. ANC visit and lack of knowledge on pregnancy and delivery services were found to be associated with delivery service utilization. Strategies with focus on increasing ANC uptake and building knowledge of the mothers and their partners would help to increase utilization of the service. Training and assigning skilled attendants at Health Posta level to provide skilled home delivery would improve utilization of the service.

**Keywords:** Institutional delivery service utilization, Preferred place of delivery, Sekela District
Respectful Maternity Care: Tool Development and Validation. *Ephrem Daniel*,
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**Introduction:** Maternal mortality continued to be the biggest challenge facing Ethiopia and other developing countries. Although several improvements were conducted in improving service availability closer to the community, rates of deliveries attended by skilled birth attendant have remained still very low. Absence of respectful maternity care is believed to have contributed for low utilization of facility delivery services. This study outlined steps conducted to construct and validate a scale that measure women’s perception of respectful maternity care provided in health facilities.

**Methods:** Inductive item generation process that included literature review and in-depth interview with labor and delivery clients followed by expert review enabled face validity and content validity of the tool. The draft RMC scale with 37-items and two additional measures of global satisfaction items measured on a five point Likert scale were administered to a developmental sample of 509 postnatal care clients visiting facilities immediately after child birth to seven weeks postpartum. Using IBM SPSS 20, exploratory factor analysis using principal component analysis with oblique rotation method used.

**Results and Discussion:** The final 15 items were loaded on four components. The extracted components were labeled as friendly care, abuse free care, timely care and discrimination free care. The final RMC scale strongly correlated with the global satisfaction measures indicating criterion related validity of the scale. Evidence for known groups validity (construct validity) of the final tool was confirmed by assessing the level of RMC reported by women who had normal and complicated deliveries where women who had normal deliveries showed higher level of satisfaction as expected by theory indicating evidence for construct validity of the scale. Stability of the scale was confirmed by running EFA in a randomly selected split sample of 320 samples from the validation sample. The final 15-item scale showed an adequate reliability ($\alpha=0.845$).

**Recommendation:** We recommend health facilities to use RMC scale in urban public health facilities for now and other researchers to conduct further exploratory and confirmatory factor analysis in different geographic areas to scale up use of the tool in different regions of Ethiopia.
Why do Women Deliver at Home? Multilevel Mixed Effects Analysis of Ethiopia National Demographic and Health Survey. Henock Yelbo; Mussie Alemayehu; Alemayehu Kabsay, Department of Public Health, College of Health Sciences, Mekelle University, Mekelle, Ethiopia.

Background: Despite of the existing intensive efforts to improve maternal health in Ethiopia, the proportion of birth delivered at home remains high and is still the top priority among the national health threats.

Objective: The study aimed to examine effects of contextual and individual women factors on women's decision on place of delivery in Ethiopia.

Methods: We extracted the data from the nationally representative 2011 Ethiopian Demographic and Health Survey (EDHS). The EDHS used a two-stage cluster sampling design with rural-urban and regions as strata. The survey collected data from a bigger number of women but our study focused on a sample of 7,908 women (weighted) whose most recent birth was within five years preceding 2011 and 576 communities (weighted) where the women were living in. Weighting was used to estimate the proportion of home delivery and other indicators to compensate the non-response rate and assure the representativeness of the evidence at regional and urban-rural level. Survey commands were also assumed to compute the associations of factors with place of delivery to adjust for the sample complex. The net effect of predictors was analyzed using a two-level mixed-effects logistic regression to determine fixed-effects of individual- and community-level factors and random-intercept of between-cluster characteristics.

Results: The proportion of women delivering at home was 88.3% (6980) in Ethiopia. Illiteracy (OR=2.74, 95% CI:1.84, 4.70; p<0.0001), attending to no or only a limited number of ANC services (OR=3.72, 95% CI:2.85, 4.83; p<0.0001), non-exposure to media (OR=1.51, 95% CI 1.13, 2.01; p=0.004), higher parity (OR=2.68, 95% CI:1.96, 3.68; p<0.0001), and distance problem to a health facility (OR=1.29, 95%CI:1.03,1.62; p=0.022) affected women to delivery at home. The between-community differences in characteristics also significantly contributed for women to delivery at home (ICC=0.75, p<0.0001). With regard to community-level characteristics, rural communities (OR=4.67, 95% CI:3.06, 7.11; p<0.0001), pastoralist communities (OR=4.53, 95%CI:2.81,7.28; p<0.0001), communities with higher poverty levels (OR=1.49 95% CI:1.08, 2.22; p=0.048), and with lower levels of ANC utilization (OR=2.01, 95% CI:1.42, 2.85; p<0.0001) had a positive influence on women to give birth at home.

Conclusions: Contextual factors and women's characteristics affect women's decision to have home delivery. In addition to efforts that target on individual women, interventions should also give emphasis on the context of a community to decrease home delivery.

Keywords: Contextual factors, Ethiopia, Home delivery, Individual factors, Institutional delivery, Multilevel modelling
Knowledge and Utilization of Partograph among Health Care Professionals in Public Health Institutions of Bale Zone, Ethiopia. Detalegn Markos, MSc, Madawalabu University, College of Medicine and Health Sciences, Department of Nursing; Daniel Bogale, MPH, Madawalabu University, College of Medicine and Health sciences, Department of Public Health.

Background: Partograph has been shown to be an efficacious tool for monitoring labour and identifying women in need of an obstetric intervention. It has transformed the subjective evaluation and management of labour into a more objective exercise with predictive ability. Therefore, the aim of this study was to assess knowledge and utilization of partograph among health care professionals in public health institutions of Bale zone, Ethiopia.

Methods: Facility based cross sectional study was conducted from May 1st to June 30, 2014. Data were collected using pretested structured questionnaire. Descriptive, binary and multiple logistic regression analyses were conducted. Statistically significant tests were declared at a level of significance of P value < 0.05

Results: Among the total study subjects, 140 (38.5%) and 224 (61.5%) of them have poor and good level of knowledge about partograph respectively. The odds of good level of knowledge about partograph was higher among midwives (AOR=7.70, 95% CI=2.38, 24.94) and respondents who graduated from governmental higher institution (AOR=2.04 95% CI=1.22, 3.42) but less among Nurses (AOR=0.40, 95% CI= 0.19, 0.85). From those respondents who had reported as they are aware of partograph, about 174 (70.2%) reported that they used partograph during provision of care for laboring mother. The odd of utilization of partograph was higher among female (AOR=2.39, 95% CI; 1.17-4.89), hospital staff (AOR=17.78, 95% CI= 2.32, 135.98) and trained respondents (AOR=2.94, 95% CI= 1.15, 7.54).

Conclusions: Only a few respondents have good level of knowledge about partograph. Professional qualification and institution where the respondents are graduated from were found to be independent predictors of respondents’ knowledge of partograph. Among those respondents who had reported as they are aware of partograph, nearly half and quarter of them reported that they used partograph while providing care for laboring mother. The independent predictors of partograph utilization were sex of the respondents, institution where they were working and receiving training on partograph.

Keywords: Partograph, knowledge, utilization, Bale zone, Ethiopia
Predictors and Consequences of Sexual Violence among Female Students of College of Public Health and Medical Sciences, Jimma University, South West Ethiopia, 2014. Melaku Admas, Lecturer in Debremarkos University; Sr. Bosna Tobeje, Assistant professor in Jimma University; Sr. Hirut Megersa, lecturer in Jimma University

Background: There are many forms of violence against women; from which sexual violence is the most common form of it which include rape, coercion, abuse using physical force, verbal threat, harassment to have sex, unwanted touching or physical advances, forced participation in pornography or other degrading acts that often persist over time and are accompanied by threats on part of the perpetrator. Sexual violence is the world's most prevalent, pervasive, and systemic problem.

Objective: To assess magnitude, associated factors and consequences of sexual violence among regular, undergraduate female students of college of public health and medical sciences, Jimma university, south west Ethiopia in March, 2014.

Methods and Materials: An institution based cross sectional study design was employed to assess sexual violence among regular, undergraduate female students of Jimma University, college of public health and medical sciences. A total of 268 study subjects were obtained by using stratified random sampling technique. Data was collected through pre-tested, self-administered questionnaire and entered by using Epidata3.1 then it was exported to SPSS version 16.0 for analysis. Logistic regression was done to identify those variables predicting the outcome variables. For the qualitative data, purposive sampling technique was employed to select participants for the focus group discussions.

Results: The prevalence’s of lifetime completed rape and attempted rape was 8.6% and 12.7% respectively among the total respondents. From those rape victims, 30.4% were occurred after joining campus. Nearly half (45.1%) of the total respondents had faced at least one form of sexual harassment practice. Keeping other variables constant, childhood residence [AOR=12.400, 95% CI: (2.692, 57.120)], drinking alcohol [AOR=5.136, 95% CI: (1.253, 21.051)] and number of sexual partners [AOR=8.791, 95% CI: (2.005, 38.536)] were significantly associated with life time rape in the multivariate logistic regression analysis. Unwanted pregnancy (66.7%) and abortion (57.1%) from reproductive; feeling unhappy (52.4%) and tried to commit suicide (42.9%) from psychological were frequently reported consequences. Academically; students who had faced completed rape in their lifetime had almost four times [AOR=4.121, (1.403, 12.105)] higher chance to have last semester CGPA ≤ 3.00.

Conclusion and Recommendation: This study showed that completed lifetime rape, attempted rape and sexual harassment had temperate prevalence rates. Factors like; having rural childhood residence, alcohol abusers and having more than one sexual partner were identified as predictors for rape. The violated victims faced significant reproductive, psychological and academic effects. Therefore, timely and integrated actions of the various stakeholders working in this area are essentially recommended to restrain this critical human rights violation.

Keywords: Sexual violence, Rape, Attempted rape and Sexual harassment
Short Birth Intervals Less Than 2 Years Double Under-One Mortality in Ethiopia: Evidence from a Meta-Analysis. Abel Fekadu Dadi (MPH in Epidemiology and Biostatistics), Institute of Public Health, college of Medicine and Health Science, University of Gondar, Ethiopia

Introduction: Even though Ethiopia has been celebrating the achievements of MDG 4, still one in every 17 Ethiopian children dies before their first birthday. This is the biggest of the African regional average. Short birth interval inconsistently reported as a risk factor by limited and independent studies in Ethiopia. Therefore, the purpose of this meta-analysis was to determine the pooled effect size of the preceding birth interval length on under-one mortality.

Methods: Studies were accessed through the electronic web-based search mechanism from PUBMED, Advanced Google Scholar, WHO databases and journals: PLoS one, and BMC using independent and combination of key terms. Comprehensive meta-analysis version 2 was used to analyze the data. An Ftest was used to assess heterogeneity. Funnel plot and statistical significance by Egger's test of the intercept was used to check publication bias. The final estimate was determined in the form of odds ratio by applying Duval and Tweedie's trim and fill analysis in the Random-effects model.

Results: 872 studies were identified on the reviewed topic. During screening, forty-five studies were found to be relevant for data abstraction. However, only five studies were fulfilled the inclusion criteria and included in the analysis. In all of the studies included in the analysis, the preceding birth interval had a significant association with under-one mortality. The final pooled estimate in the form of the odds ratio for under one mortality with a preceding birth interval of less than 24 months was found to be 2.03 (95% CI: 1.52, 2.70, random effect (five studies, n=43,909), I²=70%, P<0.05).

Conclusion: In Ethiopia, promoting the length of birth interval to at least two years was associated with the reduction of under one mortality by 50% (95% CI: 35%, 63%). Endorsement of family planning services at postpartum period by improving access and quality is highly recommended.

Keywords: Birth interval, under-one mortality, Meta-analysis
Awareness and Associated Factors among Female Students in Higher Educational Institutions toward Legalization of Safe Abortion, Harari Region, Eastern Ethiopia. Ayele Geleto, MPH and Jote Markos

Background: Unsafe abortion has been recognized as an important public health problem, especially in developing countries. It accounted for 14% of all maternal death in sub-Saharan Africa, where half of the world maternal death occurred. Unsafe abortion was estimated for 32% of all maternal deaths in Ethiopia. In 2005, the penal code was amended to permit safe abortion under set of circumstances. However, women seeking abortion lack awareness of the revised 2005 Criminal Code. This is among the major barriers that hinder seeking safe abortion services.

Objective: The purpose of this study is to assess female students’ awareness of legal safe abortion in higher educational institutions in Harari Region.

Methodology: Institutional based descriptive cross sectional study design was conducted among 762 female students from five higher educational institutions in Harari Region. Systematic sampling method was used to collect study participants from randomly selected colleges. Data were collected by self administered structured questionnaire. Then data were entered in to Epi Info 6.04 and analyzed by SPSS version 17.0 statistical packages. Frequency, ratio, mean and standard deviation were used to describe variables. Multivariable logistic regression was used to analyze data and odds ratio with 95% CI was used to identify factors that are associated with female college students’ awareness to legalization of abortion.

Result: Out of 845 proposed study participants, 762 completed the survey questionnaire making the response rate 90.2%. Only 272 (35.7%) of the respondents have good awareness about legalization of safe abortion. Studying other fields than health and medicine [AOR 0.48; 95%CI (0.23, 0.85)], being the only child for their family [AOR 0.28; 95%CI (0.13, 0.86)], having no boy friend [AOR 0.34; 95%CI (0.12, 0.74)], using family planning method during sexual intercourse [AOR 0.50; 95%CI (0.13, 0.86)], age 25 years or above [AOR 1.64; 95%CI (1.33, 2.80)] and being married [AOR 1.82; 95%CI191.12, 3.52)] were some of significantly associated factors that affected awareness of female students to legalization of safe abortion.

Conclusion: Only slightly more than a third of the study participants, 35.7% have good awareness of legalization of safe abortion. Strengthening information dissemination regarding criteria under which safe abortion is legally allowed is required for female reproductive age group in general and higher institution female students in particular.

Keywords: Safe abortion, Legalization, Awareness, Penal code, Female college student
Sex and Sexual Health Talk among Debra Birhan University Students, North Shewa, Ethiopia: A Qualitative Study. Takelo Gezabegn

Background: Friends are considered an important source of advice and information about sex. Sexual communication has been noted in various situations to be predictive of condom use. Therefore, it is important to explore and examine sexual health talk of young people’s descriptions of the social and contextual conditions that are perceived to affect sexual health communication among and by people in higher institution.

Objective: To explore young people’s sex and sexual health talk among Debra Birhan University students, Debra Berhan, Ethiopia.

Methods and Materials: Grounded theory approach qualitative study design was employed using FGDS. Participants were selected from regular students of Debra Birhan University using criterion purposive sampling approach. Semi-structured focus group discussion guides and participant observation were used as data collection tools and Focus Group Discussions were audio-recorded and transcribed verbatim, with participants’ assigned pseudonyms to protect their confidentiality, and uploaded to ATLAS.Ti 7 software for coding. Data collection and analysis were undertaken simultaneously using constant comparative analysis.

Result: Students employ to talk about sex rather than talking on other sexual health issues was how they described the talk/discussions that they have with peers and sex partners. Issues of sex like how to have sex, where and when to have sex, what type of sexual practice students need to have and with whom they have sex are the most common talk topic for the students. Sex talk is related to sexual practice of the students. The use of language influences youth sexuality. Peer pressure, having concurrent and multiple sex partners for economic and academic purpose, going to bars/night clubs or ‘over mawutar’ (for drinking, dancing and doing sex), and globalization were the most common reasons and motivators for sexual behavior (practice).

Conclusion and Recommendation: Youth have developed a specialized language to talk about sex and sexuality and this language has become part of the daily discourse, so that unsafe sexual practices become norms and are justified. Therefore, strengthening Behavior Change Communication (BCC) on risk perception, life skill training, peer-education, availing services including condom and working together with all stakeholders is recommended.

Keywords: Sex, Sexuality, Sexual Health, Sex talk, Sexual health talk, Grounded theory.
Unprotected Sex and Contraceptives Use; Perceptions among Ethiopian Female Migrants to Arab States. Jima Bebirlu, MPH, College of Medical and Health Sciences, Department of Public Health, Wollega University; Asefa Seme, MD, MPH, Assistant Prof., Reproductive Health Unit, Department of Reproductive Health and Health Service Management, School of Public Health, College of Health Sciences, Addis Ababa University.

Introduction: Females on migration process can face unwanted pregnancies, unsafe abortions and STIs including HIV/AIDS. But no study focused youth female migrants and exposing factors for unprotected sex and contraceptives non-use. Many Ethiopian young females; from rural, having primary or lower educational and, very low contraceptives knowledge and use levels, are moving to Arab States as maids. Middle men - locally known as “delala” – to mean brokers: mediate or facilitate passport and VISA processing and accommodations (may take two to three months) for these females and are entitled to have sex with them, particularly in Addis Ababa. Temporary separation from family can expose for casual sex and sexual violence heighten vulnerability, unprotected sex and its consequences, deny their long-term ambition of getting better paying jobs overseas. Horribly, pre-departure training is not given by language they understand.

Objective: To assess youth migrant’s perceptions on risks of unprotected sex and use of contraceptives to reduce its consequences during migration process in 2013.

Method: Mixed-method with convenient and purposive sampling was applied. Data were collected using semi-structured questionnaire from 258 respondents and twelve in-depth interviews. Quantitative data were analyzed using SPSS version 17. Qualitative data were thematically analyzed.

Results: Low levels of knowledge about the meaning of unprotected sex (33.5%) and importance of contraceptives (42.53%), and practice (34.5%); hampered by shame, inaccessibility, mixed feelings and non-existing pre-departure training. Unprotected sex inflicted by middlemen 112 (55.2%) and sex for money exchange 66(32.5%) were common concerns. Perceived risk of unprotected sex 98(56.3%) favored using contraceptives. Eighteen (24.0%) respondents reported unprotected sex that significantly associated with ever using contraceptive methods (P-value<0.001).

Conclusion: These migrants are at risk of the consequences of unprotected sex. Increasing awareness on the importance of contraceptives use is critical, their reproductive health right.

Keywords: perceptions, unprotected sex, contraceptive use, youth female migrants.
Assessment of Health Outcomes and Predictors of Survival of Patients on Highly Active Antiretroviral Therapy at Debre Markos Hospital, North West Ethiopia; a Retrospective Cohort Study. Ashenafi Tadele, MSc, Traditional and Modern Medicine Research Directorate, Ethiopian Public Health Institute; Neway Hiruye, Department of Public Health, College of Health Sciences, Mekelle University; Ashenafi Shumye, MPH, Department of Public Health, College of Health Sciences, Mekelle University.

Background: Highly Active Antiretroviral Therapy (HAART) has steadily decreasing deaths related to acquired immune deficiency syndrome (AIDS) worldwide. The effects of antiretroviral therapy are especially evident in low- and middle income countries. In Ethiopia, data on the outcomes related to antiretroviral uses are few. This study aimed at assessing antiretroviral treatment outcomes and associated factors.

Objective: To assess the health outcomes and predictors of mortality of patients on Highly Active Antiretroviral Treatment at Debre Markos Hospital from September, 2005 to August, 2010.

Methods: Retrospective data was collected at Debre Markos Hospital. A total of 930 adult subjects’ clinical records were selected using systematic random sampling technique. Descriptive statistics was used to summarize characteristics of patients, adverse effects and AIDS related opportunistic infection. Wilcoxon matched-pairs signed-ranks test was applied to analyze the CD4 changes from baseline to different months of follow up. The survival of patients was estimated by Kaplan-Meier analysis and compared by Log–rank (Cox Mantel) test. Cox regression model was fitted to determine the predictors of mortality and estimation of the hazard ratio of patients on antiretroviral treatment. Cox proportional hazard model was assessed by Schoenfeld residuals and Dfbeta plots, and the overall goodness of the fit of the model was assessed by Cox-Snell residuals and Hosmer and Lemishow R². The data analysis was done by using STATA 11 software.

Results: At the initiation of highly active antiretroviral treatment, 55.1% were females and the median age was 34(IQR=28 - 40). The median CD4 count was increased from baseline 116(IQR, 59-167) to 420(IQR, 352-495) cells/µl at 72 months of follow up. The major episodes of AIDS related opportunistic infections were pulmonary tuberculosis and pneumonia; 34.4% (161) and 14.1 % (66), respectively. The most frequently reported adverse drug reactions were anemia 65(25.0%), fat change 45(17.2%), and skin rash 42(16.1%). The estimated mortality was 22.5 deaths per 100 person-years. The cumulative survival probability was 57.0% (95% CI [53- 60]) and the mean survival time of patient was 20.6 (SD= 19.8) months. The independent significant predictors of mortality were advanced WHO stage (AHR=1.6, 95% CI [1.118-2.371]), mild anemia (AHR=2.6, 95% CI [1.886-3.640]), moderate to severe anemia (AHR=4.3, 95% CI [2.998-6.131]), poor adherence (AHR=3.1, 95% CI [2.34-4.129]), CD4 <50 cells/µl (AHR=2.2, 95% CI [1.140-4.182]) and not taking cotrimoxazole prophylaxis (AHR=1.7, 95% CI [1.272-2.172]).

Conclusion: In this study, there is an improvement of immunological status of the patients and reduction of opportunistic infections. The study has shown an overall low survival probability and high mortality particularly in the early follow up period. Severe forms of adverse reactions and AIDS related opportunistic infections were high among participants. Appropriate follow up of patients during the
initiation of the treatment is necessary. Proper drug counseling to report on the adverse reaction should be implemented. Prospective cohort study is recommended to illustrate the impact of HAART on the health outcomes of people on HAART.

**Keywords:** Health outcome, side effects, AIDS related opportunistic infection, HAART, mortality
Predictors of Loss to Follow-Up in Patients Living with HIV/AIDS after Initiation of Antiretroviral Therapy in southwest Ethiopia: A Cohort Study. **Tezera Moshago Berhoto, MPH, Department of Public Health Aman College of Health Sciences; Demisse Beribun, MSc, Department of Pharmacy, College of Health Sciences, Mizan Tepi University.**

**Background:** Long-term regular follow up of ART is an important component of HIV care. Patients who are lost to follow-up (LTFU) while on treatment compromise their own health and the long-term success of ART programs. The objective of this study was to determine the incidence of, and risk factors for, loss to follow-up (LTFU) of HIV patients on ART in an ART clinic in South west Ethiopia.

**Methods:** A retrospective cohort study of 2133 people living with HIV/AIDS and attending an ART clinic between 2005 and 2013 was undertaken. LTFU defined as not taking ART refill appointment for more than a month to 3 months, yet not transferred out formally. The log-rank test was used to measure differences in time to LTFU between groups and Cox proportional hazards modeling was used to measures predictors of LTFU.

**Result:** Of 2133 patients, 53.9% were female. The mean (SD) age of the cohort was 31.5 (8.0), 16 (2.2), and 3.8 (3.0) years for adults, adolescents, and children, respectively. 574 (26.7%) patients were defined as LTFU. The cumulative incidence of LTFU was 8.8 (95% CIs 8.1-9.6) per 1000 person months. Patients with regimen substitution (HR 5.2; 95% CIs 3.6-7.3), non-isoniazid (INH) prophylaxis (HR 3.7; 95% CIs 2.3-6.2), adolescent (HR 2.1; 95% CIs 1.3-3.4), and had a baseline CD4 count <200 cells/mm³ (HR 1.7, 95% CIs 1.3-2.2) were at higher risk of LTFU. WHO clinical stage III (HR 0.6; 95% CIs 0.4-0.9) and IV (HR 0.8; 95% CIs 0.6-1.0) patients at entry were less likely to be LTFU than clinical stage I patients. There was no significant difference in risk of LTFU in males and females.

**Conclusion:** Overall, the present data suggested that there was a high LTFU. Patients phase of life, drug related factors, and clinical stages were responsible for the occurrence of LTFU in this study setting. Effective control measures in the at-risk population need be implemented to improve retention.

**Keywords:** anti-retroviral therapy; lost to follow up; CD4; ART clinic, Ethiopia.
Effect of Highly Active Antiretroviral Therapy on Incidence of Opportunistic Infections among HIV Positive Adults in Public Health Facilities of Arba Minch Town, South Ethiopia: A Retrospective Cohort Study. Diregnene Misker, BSc, MPH, Lecturer in Arba Minch University School of Public Health, Meaza Demese, PhD, Lecturer and Deputy Director of Addis Continental Institute of Public Health

Background: Studies of Antiretroviral Therapy program in Africa have shown high incidence rate of opportunistic infections in both Antiretroviral Therapy receiving and Pre ART Human Immunodeficiency Virus infected patients. Incidence of opportunistic infections and factors that contribute for development of it in the era of highly active Antiretroviral Therapy were poorly described in Ethiopia especially in the study area.

Objective: To determine the effect of HAART on incidence rate of opportunistic infections and opportunistic infection free survival among HIV-positive adults in HAART receiving and Pre ART groups enrolled to ART clinic in Arba Minch town.

Method: Retrospective cohort study was used and the required sample size was 464. Study participants were selected randomly from the list of adult people living with HIV attending the public health facilities for ART. Univariate analysis was used to describe patients' baseline and follow up characteristics. Kaplan-Meier survival and log rank test were used to estimate survival and compare survival curves respectively. Cox proportional-hazard regression model was used to calculate hazard rate and to determine independent predictors of incidence OIs.

Result: A total of 464 patients (232 in each cohort) contribute for 898.12 person years of follow up. The overall incidence rate of OIs was 19.7 per 100 person years of follow up and the incidence of OIs was 55.8 per 100 person year and 3.4 per 100 person year of follow up in pre ART and HAART cohorts respectively. Being on HAART decreased occurrence of OIs by 93% (AHR= 0.07, 95% CI =0.03-0.16). In contrary being male (AHR=2.19, 95% CI =1.55-3.11, P<0.001), being widowed (AHR=1.68, 95% CI =1.08-2.60, P=0.002), substance use (AHR=2.11, 95% CI =1.46-3.06, P<0.001), rural residence(AHR=1.62, 95% CI= 1.15-2.27, P=0.005) and having baseline CD4 count of 350-499 cells/μl are independent predictors of increased risk of OI.

Conclusion and Recommendation: The incidence rate of opportunistic infection was higher in pre ART cohorts. HAART significantly reduces incidence of OIs, so patients should start HAART even with higher CD4 count to reduce occurrence of OI. Male gender, being widowed, substance use, rural residence and having baseline CD4 count of 350-499 cells/μl are independent predictors of increased risk of OIs.
Gender Disparities in Late Presentation and Survival among HIV Patients on Antiretroviral Therapy in Public Health Facilities of Arba Minch Town, Southern Ethiopia: Eight Years Retrospective Cohort Study.

Andamlak Gizaw, MPH/RH, Arba Minch College of Health Sciences, Arba Minch, Ethiopia; Tiga Tilahun, MSc./PhD Candidate/, College of Public Health and Medical Sciences, Jimma University; Amanuel Tesfay, MPH/RH, College of Public Health and Medical Sciences, Jimma University.

Background: There is a conflicting report about gender-related differences in enrolment and survival both in developed and developing countries. Where differences have been reported in resource-poor countries particularly in Ethiopia, evidences showing the effect of gender in present ationto care and survival of peoples on antiretroviral therapy are not well studied.

Objective: To assess gender disparity in presentation for HIV/AIDS care and survival among patients on antiretroviral therapy (ART) in Arba Minch town, Southern Ethiopia.

Methods: A facility-based retrospective cohort study design was carried out. By using simple random sampling method a total of 520 subjects were included in the study. Gender differences in presentation to HIV/AIDS care and survival was assessed using data from medical records of patients. Focus group discussion was also conducted for a better understanding of reasons for late presentation to HIV/AIDS care. Kaplan-Meier estimate was used to see the association of variables with time of ART initiation and follow up. Life table and log rank test was used to compare survival curves. Coxproportional-hazards regression model was used to compare in dependent determinants of time to death between male and female.

Results: A total of 520 HIV infected patients who were on highly active antiretroviral therapy (HAART) in the antiretroviral therapy clinic of Arba Minch hospital and health centre from Feb.1, 2006 to Jan.30, 2014 were included in the analysis. Men initiated ART with lower CD4 cell counts compared to women (median baseline CD4175 cells/mm³, interquartile range (IQR): 130-201) versus 181 cells/mm³, interquartile range (IQR): 146-247, P-value < 0.009). Substance buse, fear of stigma and low awareness to HIV/AIDS were among the reasons that led men to initiate ART at a Men were at an increased risk of death compared to women (adjusted hazard ratio: 2.05, 95% CI: 1.33-3.15; P-value < 0.001).

Conclusion and Recommendation: In this study, there is a marked increase in risk of mortality for men than women and it might be attributed to their late engagement into HIV/AIDS care. Therefore, more effort is required to engage men in HIV/AIDS care in a timely manner.

Keywords: Antiretroviral therapy (ART), Gender, Late presentation, Survival
Factors Affecting Survival of HIV Positive Children Taking Antiretroviral Therapy at Adama Referral Hospital and Medical College, Ethiopia. Alem Desta and Girmatien Fesseha; Alem Aman Kadir, 1Department of Public Health, College of Health Sciences, Mekelle University, Mekelle, Ethiopia 2Ormia Regional Health Bureau, Adama, Oromia, Ethiopia

Background: The aim of this study is to explore factors affecting survival of children living with HIV/AIDS after initiation of ART. In which it highlights the need for local evidence to promote interventions that optimize survival among HIV-infected children on ART in Ethiopia.

Methods: Institution based retrospective cohort study was employed on 560 children enrolled on ART from January, 2006-December, 2010. Information on relevant variables was collected from patients’ medical cards and registries. Univariate analysis was used to describe the baseline characteristics of the patients’. Life table was used to estimate survival after initiation of ART. Log rank test was used to compare survival between different categories of independent variables. Multivariable Cox proportional model was fitted to identify factors affecting survival after initiation of ART.

Results: Children on ART were followed for a median follow up period of 47 months (IQR=29, 62). At the end of follow up, 364 (65%) were alive and 43 (7.6%) were reported dead. More than three fourth of the deaths occurred within the first sixth months of starting ART. The estimated cumulative survival probabilities were 0.939, 0.928, 0.926, 0.923, 0.920, and 0.916 at 6, 12, 18, 36, 48, and 60 months, respectively. Anemia (hemoglobin level<10 gm/dl) (AHR=2.60,95% CI=1.41, 4.84), absolute CD4 cell count below the threshold for severe immunodeficiency (AHR=3.55, 95% CI=1.48, 8.46), advanced WHO staging (stage IV) (AHR=3.08, 95% CI=1.27, 7.47), and underweight (AHR=2.49, 95% CI=1.27, 4.88) have found to be predictors of mortality after ART initiation.

Conclusions: Mortality was high especially during the first sixth months following ART initiation. Therefore, close follow up of HIV exposed children to make early diagnosis and treatment initiation before the development of severe immune deficiency and advanced clinical stage is important.

Keywords: Survival status; HIV/AIDS; ART; Children; Adama; Oromia; Ethiopia

Background: Low TB detection rate remains critical obstacle for TB control. Though conventional methods for TB detection exist; Xpert MTB/RIF assay represents a paradigm shift in the diagnosis of TB and MDR-TB by simultaneous detection of M.tuberculosis and rifampicin resistance bacilli. However information regarding the performance characteristics of Xpert MTB/RIF assay is scarce in Ethiopia.

Objective: To evaluate the performance of Xpert MTB/RIF assay for diagnosis of pulmonary tuberculosis and detection of Rifampicin resistance in sputum specimens at Karamara hospital, Jigjiga.

Materials and methods: A total of 227 patients with signs and symptoms of suggestive of tuberculosis were recruited at Karamara hospital, Jigjiga during December 2013 to May 2014. Paired expectorated morning sputum samples were collected. Sputum sample was tested directly by Ziehl-Neelsen staining and Xpert MTB/RIF assay without NALC-NaOH decontamination and sputum samples were cultured for isolation of TB bacilli. Diagnostic performance of Xpert MTB/RIF assay and AFB smear microscopy was calculated using sensitivity, specificity, positive and negative predictive values, positive and negative likelihood ratios against culture as the gold standard. Results with contaminated cultures (for both LJ and MGIT) and failed Xpert MTB/RIF were excluded from analysis.

Results: Overall 25.5% (58/227) samples were positive for MTBC by MGIT and/or LJ media of which 36.2 % (21/58) and 65.5% (35/58) were positive by AFB smear microscopy and Xpert MTB/RIF respectively. The sensitivity, specificity, positive and negative predictive value of Xpert MTB/RIF assay were 65.5% (95% CI: 53.3-77.7%), 96.3% (95% CI: 93.4-99.2%), 86.4% (95% CI: 76.2-96.5%), and 88.6% (95% CI: 83.9-93.3%) respectively. Eighteen (31.0%, 18/58) more cases, which were smear microscopy negative, were detected by Xpert MTB/RIF assay.

Conclusion: Xpert MTB/RIF assay demonstrated high sensitivity in detecting MTBC in sputum specimens compared with conventional AFB smear microscopy. However, it demonstrated suboptimal sensitivity in smear negative patients compared to culture test.

Keywords: Xpcrt MTB/RIF assay, NPV, PPV, Sensitivity, Specificity
Assessment of Knowledge and Practice of Health Workers Towards Tuberculosis Infection Control and Associated Factors in Public Health Facilities of Addis Ababa, Ethiopia: Cross-sectional study. Girma Demissie Gizaw, Zewdie Aderaw, Kelemu Tilahun Kibret \( ^1 \) Department of Disease prevention and control, Addis Ababa Health Bureau, Addis Ababa, Ethiopia, \( ^2 \)Department of Public Health, College of Medical and Health Science, Debre Markos University, Debre Markos, Ethiopia, \( ^3 \)Departments of Public Health, College of Medical and Health Science, Wolleg University, Nekemte, Ethiopia.

**Introduction:** Tuberculosis is the leading causes of mortality among infectious diseases worldwide. The risk of transmission from patients to health workers is doubles that of the general population. The close contact to the infectious case before diagnosis is the major risk for tuberculosis infection. The aim of the study was to assess knowledge and practice of health professionals towards Tuberculosis infection Control and its associated factors in Health Facilities of Addis Ababa, Ethiopia.

**Methods:** A cross-sectional study was conducted from February 29 to April 15/2014 in selected health facilities in Addis Ababa. The 590 Health workers were included in the study. The sample size was assigned to each health facility proportional to their number of health workers. Study subjects were selected from each stratum by simple random sampling technique. Interviewer administered structured questionnaire was used to collect information. Binary logistic regression was used to identify factors associated with knowledge and practice of health workers towards tuberculosis infection control.

**Result:** Five hundred eighty two participants with 98.6% response rate were involved in the study. Of these, 36.1% had poor knowledge score and 51.7% had unsatisfactory practice towards tuberculosis infection control. More than six years working experience in health facility (AOR=2.51; 95% CI: 1.5-4.1) and Tuberculosis related training (AOR = 2.51; 95% CI: 1.5, 4.1) were significantly associated with knowledge on tuberculosis infection control. Having experience in TB clinic (AOR =1.93; 95% CI: 1.12, 3.34) and tuberculosis related training (AOR=1.48; 95% CI: 1.87, 2.51) were significantly associated with practice on tuberculosis infection control.

**Conclusion:** One third of health workers had relatively poor knowledge and nearly half of them had unsatisfactory practice on tuberculosis infection control. Tuberculosis training and working experiences in health facility are determinant factor to knowledge. Whereas TB related training and experience in TB clinic are predictor to practice. So, Training of the health professionals, on job orientations of junior health workers, sustainable supply of personal protective, renovation of the non-cross ventilated rooms and farther study are recommended.

**Keywords:** knowledge; practices; health worker; tuberculosis control
The Yield of Screening Symptomatic Contacts of Multidrug-Resistant Tuberculosis Cases at a Tertiary Hospital in Addis Ababa, Ethiopia. Descriptive Cross-Sectional. Addisalem Tiru, MPH/Epidemiology; Dogu Jerene, MD, PHD, Deputy Country Director, Heal TB; Fikre Enquelasie, PHD, Lecturer, School of Public Health, Addis Ababa University.

Background: Early detection and treatment of multidrug-resistant tuberculosis (MDR-TB, resistant to isoniazid and rifampicin) is an urgent global priority. Identifying and tracing close contacts of patients with MDR-TB could be a feasible strategy to achieve this goal. However, there is limited experience with contact tracing among patients with drug-resistant tuberculosis both globally and in Ethiopia. Here we present our findings on the extent of screening symptomatic contacts and its yield in a tertiary hospital in a major urban setting in Ethiopia.

Methods: This was cross sectional, hospital based study conducted in October and December 2012. We reviewed the records of all confirmed MDR TB cases treated and followed at St. Peter TB specialized hospital between January 2009 and December 31 2012. Using secondary data abstraction form, we collected baseline and contact tracing related data from the hospital MDR-TB register and patient files. We calculated household contact tracing rate among index MDR TB cases treated in the hospital and determined the proportion of MDR TB patients among traced household contacts. Bivariate and multivariate analyses were used to identify factors associated with contacts of MDR TB cases.

Results: Symptomatic household contacts were identified in 29 (5.7%) of 508 index cases treated at the hospital. There were a total of 155 family members in the households traced of whom 16 (10%) had confirmed MDR-TB. At least one confirmed MDR-TB cases was identified in 15 (51.7%) of the 29 traced households.

Conclusions: Tracing symptomatic contacts of MDR-TB cases could be a high yield strategy for early detection and treatment of MDR-TB cases in the community. The approach should be promoted for wider adoption and dissemination. Larger scale studies should be done to determine its effectiveness and sustainability in similar settings.

Keywords: Contact tracing, MDR-TB, Ethiopia.
Treatment Outcome of Multidrug/Extensive Drug Resistant Tuberculosis among Patients Treated at St. Peter Hospital in Addis Ababa. Zuriyah Mengistu1, Gassaw Getaw21Department of Nursing Addis Ababa University; Ethiopia 2St Peter Hospital

Background: There were 650,000 cases of multidrug resistance (MDR)-tuberculosis (TB) among the world 120 million prevalent cases of TB. Ethiopia is one of the 27 high burden multidrug/extensively drug-resistant tuberculosis (M(X)DR-TB) countries ranking 15th with more 5000 estimated MDR-TB patients annually.

Objective: To assess the treatment outcome of M(X) DR-TB in patients who treated at St. Peter Hospital in Addis Ababa.

Methods: A cross-sectional quantitative study was done. After stratifying the regimen and treatment period retrospective data were collected from 2011 to 2013 for 680 multidrug resistant patients using a standard format. The raw data was entered cleaned and analyzed using SPSS program package to compute descriptive and inferential statistics for 557 patients. Ethical clearance was taken from Health Science College Institutional Review Board. Patient information was kept confidential.

Result: Out of the total 557 patients who complete treatment between 2011 and 2013 but not on clinical trial, 481(86.3%), 72(13.4%) and 2(0.3%) were on standard, individualized and empirical treatment regimen respectively. Majority of the respondents, 364(75.4%) and 55(76.4%) had successful treatment outcome (cured or completed treatment) for standard regimen and individual regimen respectively. Factors that were significantly associated with MDR_TB treatment outcome: mild drug side effect (Adjusted Odds Ratio [AOR]=2.47, 95% CI:2.25 to 4.89) more likely for successful treatment outcome; co-morbidity with chronic illness (Diabetes mellitus and hypertension) (AOR = 0.40: 95% CI: 0.19 - 0.83) were 60% less likely for successful treatment outcome.

Conclusion: Patients who had severe drug side effect and co-morbidity with chronic illness resulted unsuccessful treatment outcome. Therefore; monitoring drug side effect and chronic illness were highly recommended during treatment regimen.

Keywords: MDR-TB treatment regimen, MDR-TB success, MDR-TB failure.
Constructing a Predictive Model for Determining the Status of Tuberculosis Patients: The Case of Debire Birhan Hospital, North Shoa, Ethiopia. Mengistu Yilma (BSC, MPH (HI)), Million Mesbesha (BSC, MSC, PHD) and Takele Tadesse (BSC, MPH).

Background: Tuberculosis is the leading cause of mortality among infectious diseases worldwide. Since data mining (DM) can explore interesting, useful and task oriented knowledge from huge amount of data, this study attempted to apply data mining to construct predictive model in relation to the treatment outcome in order to provide decision support for healthcare providers and decision makers. Evaluation of treatment outcome is used as a major indicator of program quality performed by the health institutes.

Methods: An open source data mining tool WEKA software was used. The study was guided by the standard Data Mining model called Cross Industry Standard process for Data Mining (CRISP-DM). A total of 4780 patient records were taken from the registration book of patients registered for treatment in Debirebirhan hospital from October, 2001 to June, 2011.

Result: After extensive experiment was done J48 decision tree showed accuracy of 84.5% , sequential minimal optimization showed accuracy of 81.5% and multilayer perceptron registered the highest accuracy of 85.8% to predict patients’ status. Experimental result depicts that conducting follow up sputum test result for smear positive patients was the most determinant predictor attribute for cured and failed classes of patients.

Conclusion and Recommendation: All algorithms experimented in this study showed promising result to predict patients’ status. Conducting follow up sputum test for smear positive patients, treatment interruption, being pulmonary positive and rural address were the most determinant predictor attribute to predict their status. Further research will be expected to be undertaken on large scale data and adding attributes like sign and symptom of the patients.

Keywords: predictive model, tuberculosis

Introduction: In recent years, overweight and obesity among children and adolescents have emerged as a global epidemic although much has not been known about the burden in Ethiopia. Overweight and obesity predispose adolescence to cardiovascular and metabolic disorders in adulthood. However, information regarding overweight and obesity is scarce for planning primary prevention.

Objective: This study assessed the prevalence of overweight/obesity and associated factors among private high school students.

Methods: A school based cross-sectional study was conducted in five selected private high schools in Addis Ababa from March 2 – May 2/2014. Study participants were selected using multistage sampling technique. Body mass index (BMI) was used to determine the nutritional status. Descriptive statistics, cross tabulations, bivariate and multivariate analyses were done.

Results: In total 491 students participated in the study. The students were between 16 and 19 years old. Two hundred eighty one (57.3%) of the respondents were grade 12 students, 291 (59.4%) were females having a mean age of 17.6 year with standard deviation of 0.82. Based on BMI for age classification of CDC, out of 491 students 42(8.6%) were overweight and 15 (3.1%) were obese. The combined prevalence of both overweight and obesity was 11.7 %. Preference of sweets and fried food items for snack (AOR=5.4 [95%CI: 1.8-16.6]), going for any sporting activities (AOR=0.4 [95%CI: 0.01-0.2]) and watching television less than three hours (AOR=0.05 [95%CI: 0.02-0.2]) were found to be statistically significant with being overweight and obese after controlling the effect of confounders.

Conclusion: The overweight and obesity percentages observed in this study are indicative in the sense that, they provide a foresight into the future overweight and obese population of the city. Consumption of sweets, sporting activities, and television watching time were independent predictors of overweight and obesity. The schools and families should target promotion of active lifestyles and healthy diets among students and need to be encouraged for regular physical exercise and decrease the time spent on sedentary habits.
Assessment of Knowledge and Practice of Breast Self-Examination among Female Students in Addis Ababa University, Ethiopia. Wudinese Belete

Breast cancer is the leading cause of cancer mortality in women worldwide. More than one million women are estimated to be diagnosed with breast cancer every year, and more than 410,000 will die. By 2020, it is estimated that 70% of all breast cancer cases worldwide will be in low and middle resource countries. In Ethiopia, breast cancer is the second most often occurring cancer among women. Monthly breast self-examination is one of the primary methods for early detection of breast cancer in asymptomatic women. The objective of this study is to assess the proportion of knowledge and practice and to identify associated factors with the knowledge of breast self-examination among female university students in Addis Ababa, Ethiopia. The study was conducted in Addis Ababa University from December to January 2011/12 using a cross sectional descriptive study with internal comparison study design. The study population comprises undergraduate female student in the regular session from selected departments. 797 study subjects were recruited using two stages random sampling technique. The data were collected by self-administered questionnaire. After the data collection, data were checked for completeness and errors and then the data were entered, cleaned and analysed using SPSS version 15 and Epi Info version 3.5.3. This study revealed that 64.5% of female students had good knowledge of breast self-examination. For this knowledge four independently associated factors were identified. These are year of study; being second year (AOR=1.72 with 95% CI: [1.10-2.68]) and third year (AOR=2.23 with 95% CI: [1.20-3.89]), living outside the campus (AOR=2.02 with 95% CI: [1.36-3.02]), family history of breast cancer (AOR=4.40 with 95% CI: [1.45-13.36]) and know someone suffering with breast cancer (AOR=1.49 with 95% CI: [1.05-2.13]). 27% of female students perform breast self-examination, among these only 15.7% were doing regularly (monthly). Therefore in conclusion, even though more than half of respondents had good knowledge of BSE there is wide gap with practice. Efforts to promote strong and effective public education programs that focused on earlier detection and treatment of the disease are vitally needed.
Knowledge, Perceptions and Behaviours on Cervical Cancer among Women in Tigray Region, Northern Ethiopia. Alemayhu Bekele (Masters in Public Health), Program Coordinator, Ethiopian Public Health Association

Background: Global burden of cancer cases and deaths showed an increasing trend. Cervical cancer is one of the leading causes of cancer related morbidity and mortality in women. Evidences from WHO reports showed the trend of cases and deaths attributed to this type of cancer is sharply rising in developing countries including Ethiopia. Awareness and unprotected reproductive behaviour appeared to influence the incidence of this threat. The aim of this study was to assess the knowledge, perceptions and behaviour of cervical cancer in relation to screening practices and risky reproductive health behavior to design appropriate public health intervention to ensure prevention.

Methods: A descriptive cross-sectional community based survey was conducted in Kilte-Awlaelo Health and Demographic Surveillance Survey sites and Mekelle Town. This was undertaken as part of the wider WHO steps wise survey in the two settings. Data were collected from December 2013 January 2014. A total of 1,433 women in the age group 25-64 years old were included. Face to face interview was employed to gather data from individual respondents. Poor knowledge or No knowledge was defined as a woman who does not have any information regarding the risk factors of cervical cancer and its consequences and screening of cervical cancer or who heard only the terms but without any further information. Data were entered to EPI data software and exported to SPSS version 20 to carryout descriptive and analytical statistics. Significant statistical association between the outcome and explanatory variables was declared using odds ratio and corresponding 95% confidence interval. The findings were presented using tables and figures.

Results: The median age of the study participants was 31 year (ranged from 25-64 year). Majority 1123(88.2%) had no or poor knowledge on cervical cancer. About 967(76.1%) did not know how frequent to have pap smear or visual inspection with acetic acid. Majority or 1109(89.1%) did not have Papsmear or visual inspection in three years preceding the study. Of the women examined with pap smear or visual inspection with acetic acid, 43(31.6%) were informed that they had findings indicating cervical cancer or going to develop it. Nearly 34% had had their first sexual intercourse before the age of by the age of 15 years. More than a third 351(34.5%) of the participants had history of sexually transmitted infections. Predictors of poor knowledge were ever had history of sexually transmitted infections OR and 95% CI0.52(0.29-0.95) and having history of abortion OR and 95% CI, 0.43(0.24-0.78). The predictors for screening of cervical cancer were knowing nothing about cervical cancer OR and 95% CI, 188(44.0-797.0) and only heard the term before OR and 95% CI 64(17-241).

Conclusions and Recommendations: The knowledge status of the study participants on cervical cancer was very low. Risky reproductive health behaviours are prevalent. Having history of abortion and sexually transmitted infections were found to increase knowledge status. Poor knowledge appeared to increase the risk of not undertaking screening for cervical cancer. Awareness raising interventions on cervical cancer have to be devised using appropriate tools of communication both in the community and health care settings.
Pattern and Trend of Medical Admissions of Patients of Chronic Non-Communicable Diseases in Selected Hospitals in Addis Ababa. Abebe Bekele1, Habtamu Teklie1, Mekonnen Tadesse1, Atikuare Defar1, Theodros Getachew1, Kassahun Amenew1, Abebe Bekele; Ethiopian Public Health Institute (EPHI).

Background: Although chronic non-communicable diseases (NCDs) have been of major public health importance in developed countries for several decades, currently it is becoming a major public health threat in the developing world as well. The increasing NCDs burden is compounded by failure to provide key decision makers with clear and up-to-date evidence on the burden. The present study was designed to collect retrospective secondary data from purposively selected Government and Private hospitals in Addis Ababa that offer services to out-patients of NCDs through special referral clinics.

Objective: To depict the patterns and trends of common NCDs in Government and Private hospitals in Addis Ababa, and provide decision makers with information on the burden of NCDs at health facility level.

Methods: Four government and five private owned hospitals in Addis Ababa that offer referral clinic for NCD were selected to collect retrospective data from 2007 to 2011. Records of cardiovascular diseases, diabetes mellitus, cancer, chronic kidney diseases and chronic pulmonary obstructive diseases including asthma were collected. The data were collected from hospital registration and patient records anonymously by respective hospital staff members assigned in the referral clinics.

Results: Records of 46,565 patients were collected and 77% of the patients were from urban areas while 23% were from rural areas. With regard to gender, 56% of the patients were females and 44% were males. As age increases the proportion of patients with NCDs increased and there was a decline after 54 years. Among the patients who were attending outpatient clinics, the vast majority about 40% were patients with cardiovascular diseases while diabetes and cancer each independently accounts 20% of the proportion. Patients with chronic pulmonary obstructive diseases including asthma, and chronic kidney diseases were 6% and 5%, respectively. Information regarding the status of patients while making follow-up was also collected that resulted in about 56% of all NCDs out-patients were actively following their health condition by making frequent visit to their respective out-patient referral clinics, about 2% were deceased and 1% referred to other hospitals, about 41% of all NCDs patients were found to be drop-out for unknown reason.

Conclusion and Recommendations: This assessment revealed that NCDs are becoming public health problems in the country. Based on the finding of the present study other studies elsewhere, the Ethiopian Public Health Institute in collaboration with Federal Ministry of Health and other development partners is getting ready to conduct NCDsteps survey across the country. The main purpose of the study is to assess risk factors for major chronic Non-Communicable Diseases (NCDs) and prevalence of selected NCDs in order to establish baseline information for policy and program development.
Fruit and Vegetable Consumption and the Risk of Developing Diabetes Mellitus among Government Employees: A Cross Sectional Study Conducted in Harar Town, Eastern Ethiopia. Desalegn Admassu, Yadeta Dessie, Kedir Teji, Dawit Ayele

Background: WHO estimates the number of cases of diabetics in Ethiopia to be about 800,000 in 2000 and projected that it would increase to about 1.8 million by the year 2030. Dietary factors are important and are potentially modifiable risk factors. This study assessed the role of fruit and vegetable consumption and the risk of type 2 diabetes mellitus among government employees of Harar town, Eastern Ethiopia.

Methods: A cross sectional study was conducted in a total of 787 proportionally selected employees of ten different government offices from May- July 2013 using the WHO STEPlwise approach to chronic disease risk factor surveillance questionnaire. An overnight fasting capillary blood was analyzed for blood glucose concentration using a commercially available portable electronic blood glucose monitor (Senso Card Plus). Subjects with fasting blood sugar level ≥126mg/dl were further checked with a more specific enzymatic test (Glucose oxidase method using HumaStar 80, compact automated clinical chemistry analyzer, Germany). The collected data were entered into Epidata, transferred to SPSS Version 16. Categorical variables were analyzed with Pearson’s χ² test. Logistic regression model was used to study the risk factors. Variables with p<0.10 in univariate analysis were entered to multivariate analysis. In all analyses p<0.05 was considered statistically significant.

Results: The prevalence of undiagnosed diabetes (≥126mg/dl) after an overnight fasting among the study participants was 5.5%. A statistically significant association was observed between age ≥35 years (P=0.019), hip circumference (P=0.005), waist circumference (P=0.008), <2 meals/week fruit and vegetable consumption (P=0.021) and diabetes mellitus. After bivariate logistic regression, individuals who consume fruit and vegetable for about ≥3 meals per week were about 50% less likely to be diabetic, AOR (95% CI)=0.496 (0.271,0.910). It was also shown that a ten point increase of systolic blood pressure increases the likelihood of diabetes mellitus by about 6%, AOR (95% CI) = 1.057 (1.027, 1.087).

Conclusions: Undiagnosed diabetes has substantial health implications because subjects remain untreated. Behavioral change communication on the need for healthy life style including fruit and vegetable diet and getting regular checkup for blood sugar level is recommended to detect type 2 diabetes early and prevent its complications.

Keywords: prevalence, type 2 diabetes, government employees, fruits and vegetables
Stress and its Association with Substance Use and Academic Performance among Medical Students, Jimma University, Southwest Ethiopia, 2013. Andualem Mossie (PhD), Associate Professor of Medical Physiology, Jimma University, College of Public Health and Medical Sciences; Leta mekaku (MSc); Alemayehu Negash (PhD, MD).

Background: Stress among medical students is common. Chronic stress impairs memory storage, affects academic performance of students and leads to depression, substance use and suicide. There is, however, lack of such evidence in Ethiopia. The main aim of the present study was to determine the prevalence and severity of stress and its association with substance use and academic performance among medical students in southwest Ethiopia.

Methods: Institutional based cross sectional study was conducted in April 2013 among 329 sampled medical students of Jimma University. Data were collected using General Health Questionnaire with 12 items (12-GHQ), Medical Students Stress Questionnaire with 20 items (20-MSSQ) and Drug Abuse Surveillance Test (DAST). Data were analyzed using SPSS Version 20.0. Bivariate and multivariate logistic regression analysis and Student t-test were done when applicable. Statistical significance accepted at p < 0.05.

Results: The mean age of the respondents was 23.02(SD ± 2.074) years. The current prevalence of stress was 52.4%. Academic related stressor was the main cause of stress in 281(88.6%) students. Thirty six (11.4%) students had mild stress; 90(28.4%) had moderate stress; 128(40.4%) had high stress and 63(19.9%) had severe stress. Stress was associated with khat chewing [AOR=3.03, 95% CI(1.17,7.85)]; smoking [AOR=4.55, 95% CI(1.05,19.77)] and alcohol intake [AOR=1.93, 95% CI(1.03,3.60)]. The stress was significantly decreased as the year of study increased. The prevalence of stress was higher during the initial three years of study. Stress was significantly (p=0.001) but negatively (-0.273) correlated with academic achievement (last semester CGPA).

Conclusion: The prevalence of stress among medical students was high and had negative impact on their academic performance. Years of study, monthly income, khat chewing, cigarette smoking and alcohol consumption were predictors of stress. Academic counseling and awareness creation on the adverse effect of substance use are recommended.

Keywords: Stress, Substance use, Academic achievement, Medical students
Depression: Prevalence, severity and its association with substance use, Jimma Town, Southwest Ethiopia. Addisalem Motsie (PhD), Associate Professor of Physiology, Jimma University, College of Public Health and Medical Sciences; Dagmawi Kindu (MS); Alemaryehu Negash (MD)

Background: Depression is a significant contributor to the global burden of disease and affects 350 million people across the world. Substance use could be the risk factor for depression. Despite this fact, there is a paucity of information on the association between depression and substance use. The main aim of the present study was to determine the prevalence and severity of depression and its association with substance use.

Methods: A cross-sectional study was conducted in Jimma Town on March, 2012. A multi-stage stratified sampling method was conducted using structured questionnaire and Beck Depression Inventory scale Version II (BDI-II) for data collection. Six Kebeles were selected using lottery method from thirteen Kebeles of Jimma town. From these Kebeles, 650 households were selected using systematic random sampling. One adult person was chosen from each household, thus 650 samples were selected. Data analysis was carried out using the SPSS Version 16.0 for Windows.

Results: From 650 sampled individuals, 590 participants delivered complete information; giving the response rate of 90.77%. Majority of the respondents were females 300 (50.9%), age group 24-35 (31.9%), Married 312 (52.9%), and merchants 213 (36.1%). The current prevalence of depression was 171 (29.0%). Based on BDI-II grading of the severity of depression, 102 (17.3%) had mild, 56 (9.5%) moderate, 13 (2.2%) severe depression. According to our study result, age 55 years and above [OR=5.94, CI (2.26-15.58)], widowed [OR=5.18, CI (1.18-22.76)], illiterate [OR=9.06, CI (2.96-27.75)], khat chewers [OR=10.07, CI (5.57-18.25)], cigarette smokers [OR=3.15, CI (1.51-6.68)], shisha users [OR=3.04, CI (1.01-9.19)] were significantly associated with depression independently.

Conclusion: The magnitude of depression in Jimma town was found to be high. Old age, being widowed, illiterate, khat chewing, cigarette smoking and shish usage could be the potential risk factors for depression. Therefore, prevention of depression is an area that deserves attention. Reduction of risk factors for depression such as khat chewing, cigarette and shisha smoking is commendable. Psychological and pharmacological therapies are equally important as well.

Keywords: Depression, prevalence, substance, Beck depression inventory, mood disorder Substance use reefers to khat chewing, cigarette smoking, alcohol intake and shisha smoking in the context of this study.
Perceived Challenges and Opportunities Arising from Integration of Mental Health into Primary Care: a Cross-sectional Survey of Primary Health Care Workers in South-west Ethiopia. Mubarek Abera, Markos Tesfaye, Tefera Belachew and Charlotte Hanlon

**Background:** The WHO’s mental health Gap Action Program seeks to narrow the treatment gap for mental disorders by advocating integration of mental health into primary health care (PHC). This study aimed to assess the challenges and opportunities of this approach from the perspective of PHC workers in a sub-Saharan African country.

**Methods:** A facility-based cross-sectional survey of 151 PHC workers was conducted from 1st to 30th November 2011 in Jimma zone, south-west Ethiopia. A structured questionnaire was used to ask about past training and mental health experience, knowledge and attitudes towards mental disorders and provision of mental health care in PHC. Semi-structured interviews were carried out with 12 heads of health facilities for more in-depth understanding.

**Results:** Almost all PHC workers (96.0%) reported that mental health care was important in Ethiopia and the majority (66.9%) expressed interest in actually delivering mental health care. Higher levels of general health training (degree vs. diploma) and pre-service clinical exposure to mental health care were associated with more favorable attitudes. Knowledge about mental disorder diagnoses, symptoms and treatments was low. Almost half (45.0%) of PHC workers reported that supernatural factors were important causes of mental disorders. Health system and structural issues, such as poor medication supply, lack of rooms, time constraints, absence of specialist supervision and lack of treatment guidelines, were identified as challenges. Almost all PHC workers (96.7%) reported a need for more training, including a clinical attachment, in order to be able to deliver mental health care competently.

**Conclusions:** Despite acceptability to PHC workers, the feasibility of integrating mental health into PHC in this sub-Saharan African setting is limited by important gaps in PHC worker knowledge and expectations regarding mental health care, coupled with health system constraints. In addition to clinically-based refresher mental health training, expansion of the specialist mental health workforce may be needed to support integration in practice.

**Keywords:** Mental health, Mental disorders, Mental health care, Primary health care, Task shifting, Scale-up, Sub-Saharan Africa, Low-income country
Prevalence and Associated Factors of Khat Chewing among Regular Undergraduate Students at Debrebrhan University, North Shoa Zone, Amhara Region, Ethiopia, 2014. Elfey Admasu, MSc; Lecturer, Debrebrhan Health Science College; Getahun Hibiye, MSc.

Background: Substance use among adolescents is becoming a great problem worldwide. This is true especially in college and university students. Khat is one of the most frequently used substances among these groups. Khat chewing has serious health, social and economic consequences. This study was conducted with the objective of assessing the prevalence and associated factors of khat chewing among regular undergraduate students of Debrebrhan University, Debrebrhan, Ethiopia.

Methods: Institution based cross-sectional study design was employed. A structured self-administered pre-tested English version questionnaire was used to collect information on khat chewing. The source population was stratified based on their year of study. Bivariate and multivariate logistic regression analyses were conducted to identify associated factors of khat chewing.

Results: The lifetime, past 12 month and current prevalence of khat chewing were reported to be 20.1%, 16.6% and 12.2% respectively. There were significant associations between khat chewing and family members chewing khat [AOR:6.26, 95%CI:(2.67,14.72)], friends chewing khat[AOR: 6.89, 95%CI:(3.71, 14.80)] and alcohol use by the participants[AOR:2.50, 95%CI:(1.36, 4.60)]. The most common reasons to chew khat by these study subjects were for examination preparation followed by socialization. It is an acceptable and socialization practices that about 78% of the chewers were using khat with their friends.

Conclusion: The prevalence of khat chewing in this study area was significantly high compared to some previous studies done in Addis Ababa University and Addis Ababa governmental high schools. The pattern of khat chewing among university students is not restricted by social regulation mechanisms, and even, it is a social norm. Teachers in high schools and colleges and Instructors in the university should follow their students’ substance use behavior including khat and need to counsel those who are at risk.
Magnitude and Associated Factor of Delirium among Hospitalized Patients at St. Paul’s Hospital Millennium Medical College, Addis Ababa, Ethiopia, 2014. Tesfa Mekonen1, Getnet Mibret2, Dereje Assefa3, Wubalem Fekade1 1College of Health sciences and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia 2Psychiatry Department, College of Health sciences and Medicine, University of Gondar, Gondar, Ethiopia 3Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia

Background: Delirium is an acute onset of fluctuating cognitive impairment and disturbance of consciousness. Its prevalence ranged from 10% to 85% across different hospital settings. It is also associated with multi factorial conditions like poly therapy, benzodiazepine exposure, infection and medical or surgical problems. Even though delirium is with significantly high prevalence and has negative sequel on the hospitalized patients, its recognition and management is poorly practiced.

Objective: The objective of this study was to assess the prevalence and associated factors of delirium among St. Paul’s Hospital Millennium Medical College inpatients, Addis Ababa, Ethiopia from April 25 to May 25, 2014.

Methods: Institution based cross sectional study design was conducted among St. Paul’s Hospital Millennium Medical College inpatients from April 25 to May 25, 2014. Samples of 423 patients were selected by using systematic random sampling technique. Data were collected using pre-tested interviewer-administered questionnaire. The data were cleaned, coded and entered into EPI-INFO version 3.5.1 and transported and analyzed using SPSS version 20. To indicate the strength of association, odds ratios (OR) and 95% confidence intervals (95% CI) were used.

Result: From the selected 423 participants 410 (97%) were involved in the study. The overall prevalence of delirium was found to be 16.6% and the recognition rate of delirium was only 27.9%. Participants with age 60 years & above (AOR=7.8, 95% CI: 3.1, 19.5), visual impairment (AOR=3.4, 95%CI: 1.3, 8.9), poly therapy (AOR=2.4, 95% CI: 1.2, 4.6) and benzodiazepine exposure (AOR=11.3, 95% CI: 4.9, 25.8) were factors significantly associated with delirium.

Conclusion: Delirium was high among St. Paul’s Hospital Millennium Medical College inpatients. Old age, poly therapy, benzodiazepine exposure, visual impairment and current use of alcohol were the main factors associated with delirium. The high prevalence and low recognition rate of delirium requires controlling and monitoring modifiable factors to minimize delirium prevalence.

Keywords: Delirium, hospitalized patients, prevalence and associated factors
Factors Associated with Child Feces Disposal Practices in Ethiopia: Evidence from Demographic and Health Survey.  

Mulanen Azage, MPH, Babir Dar University; Demowitz Haile, MSc.

Background: Inappropriate disposal of human feces facilitates the transmission of pathogens and the practice of unsafe disposal of child feces in Ethiopia was in the range of 65-79%. However, factors associated with safe child feces disposal practice has not yet well explored in the country. Therefore, the aim of this study was to identify factors associated with safe child feces disposal practice.

Methods: Secondary data analysis of the Ethiopia Demographic and Health Survey was used which was conducted on nationally representative cross-sectional survey in 2011. The analysis was done on the practice of child feces of mothers who had under-five children. The practice of child feces disposal was categorized into ‘safe’ and ‘unsafe’ according to World Health Organization. Binary logistic and multivariable logistic regressions were employed to identify factors associated with child feces disposal practices.

Result: The practice of safe disposal of child feces was associated with being lived in urban (AOR= 1.61, 95%CI: 1.10-2.43) and improved latrine (AOR= 2.23, 95%CI: 1.84-2.71). Those mothers found in the richest wealth quintile practice safe child feces disposal more likely as compared to poorest wealth quintile [6.15 (AOR= 6.15, 95%CI: 4.85-7.78)]. Mothers who attended higher education status were 67% more likely to practice safe child feces disposal as compared non educated mothers [1.67 (AOR=1.67, 95%CI: 1.10-2.61). The practice of safe child feces practice of mothers who had four and above under five children in is decreased by 55% (AOR=0.45, 95%CI: 0.30-0.66) than those mother who had one child.

Conclusion: Place of residence, wealth index, mother’s education, child age and presence of improved latrine were factors associated with safe child feces disposal practices. Interventions related with above factors socioeconomic empowerment of households and educational opportunities for women should be strengthened and emphasis should be to rural area to increase improved sanitation coverage.

Keywords: Child feces disposal, Ethiopia, Demographic and Health Survey
Evaluation of Dilla and Hawassa Correctional Facilities from Wash Perspective. **Mekonnen Birhanie** (MSc), College of health science Dilla University, **Yohannes Adisu** (MPH), College of health science Dilla University

**Background:** The conditions of prisons in African countries are afflicted by severe inadequacies including high overcrowding, poor physical, health, and sanitary conditions.

**Objective:** To evaluate the existing health status of the inmates, water, sanitation and hygienic condition of Dilla and Hawassa correctional facilities to develop water, hygiene and sanitation related projects as an intervention.

**Methods:** A Cross-sectional study has been conducted at Dilla and Hawassa correctional facilities. The data was collected by using simple random sampling technique from 297 inmates in each correctional facility. Structured questionnaire and observational checklist was used for the data collection. The data was analyzed by using SPSS version 16.

**Result:** Poor personal hygiene and housing condition have been seen. There is also shortage of water, the majority of the respondent 260(87.5%) use 1-2 litres and 177(59.6%) use 2-5 litres of water per capita per day for all purposes in Dilla and Hawassa respectively. 182(61.3%) and 222 (74.7%) of the respondent were exposed to water borne disease in Dilla and Hawassa respectively. The detainees also exposed to food borne infection and/or poisoning 192(64.6%) and almost half of the inmates in Dilla and Hawassa prisons respectively. Most of the inmates 197(67%) and 211(71%) were exposed to insect borne diseases in Dilla and Hawassa respectively. From those water borne diseases diarrhoea, intestinal parasite, typhoid fever are the most prevalent in both prisons. Malaria, relapsing fever, and typhus were the top three vector borne diseases identified in both prisons. Education and hand washing were statistically significant with food borne infection at 0.002, 0.03 and 0.001, 0.01, P<0.05 in Dilla and Hawassa respectively. Frequency of body and cloth washing were statistically significant with vector borne diseases at 0.00 and 0.01, P<0.05 respectively in Dilla. Education had also significant effect on the exposure of water borne diseases at 0.005, P<0.05 in Hawassa prison.

**Conclusion and Recommendation:** Inmates were exposed to WASH related infection. Therefore both correctional facilities need to have safe and adequate water supply, proper sanitary facilities, solid and liquid waste management practice, Identify and utilize safe vector control techniques, healthful housing condition and good personal hygiene practice. WASH related project development in both correctional facilities was recommended.

**Keywords:** inmates, correctional facilities, Sanitation and Hygiene

WASH: Water Hygiene and Sanitation
Effect of Community Led Total Sanitation Interventions on Diarrheal Diseases and Other Hygienic behaviors, Southern Ethiopia. Hunechew Beyene1,2, Wokgari Deressa2, and Adera Kanie11Hawassa University, Addis Ababa University School of Public Health

Introduction: Diarrheal disease has been one of the major public health challenges especially in developing countries. Access to improved water sources, sanitation, and hygiene promotion has been the best weapon to reduce the health impact of diarrheal diseases. Community Led Total Sanitation (CLTS) approach through promotion of behavior change and awareness of health and hygiene aspects has been regarded as one of the simple solution to reducing disease burden. With the understanding of this concept the ministry of health of Ethiopia has adopted CLTS to be implemented in the country thought the Health Extension program. Recent reports reveal that using CLTS as a promotion tool, many rural kebeles (kebeles are the smallest administrative unit in Ethiopia) in many parts of the country have been declared to be Open Defecation Free (ODF). However, various researchers reported that the prevalence of diarrheal disease and poor hygienic practices are still common in many parts of the country and in the study area. The present study evaluated the effect of the CLTS intervention by comparing the magnitude of diarrheal disease in children less than five years of age and improvements in other hygiene behaviors in households found in ODF and Non ODF kebeles.

Method: This cross-sectional study was conducted between July 1- August 15, 2013 in 8 rural kebeles of Sidama zone, Southern Ethiopia of which 4 are from ODF and the remaining 4 are from non-ODF kebeles. A total of 1939 under five children between the ages of 6 and 59 months in 1677 households were included in the study. Household data was collected using structured and pretested questionnaire. Trained health professionals who had sufficient understanding of the subject collected the data. Ethical approval was obtained from the Institutional Review Board of Addis Ababa University, and permission was obtained from the regional health bureau. In addition a total of 8 Focus Group Discussion (FGD) was also conducted in the 8 kebeles.

Results: The 2 weeks prevalence of diarrhea was 497(25.6%) with no difference in prevalence between ODF and non-ODF villages. In principle, in ODF kebeles, all households are supposed to own a sort of any sanitation facility. However, the coverage was found to be only 79.4%. The coverage in the Non-ODF kebeles was 59.1%. Nearly all of the latrines were simple pit type, and 489 (39.2%) are not hygienic. And 93.3% of the latrine owners didn’t have hand washing facilities. Among the latrines, 414 (24.8%) had some sort of problems, of which 272 (56.4%) were collapse of the pits. Among the 414 households with latrine problem, 58.2% are found in the non ODF kebeles. The logistic regression analysis indicated that latrines in the ODF kebeles were more hygienic than those found in the non ODF kebeles (OR=1.485, 95% CI, 1.158-1.896). However, the latrines constructed were not improved as compared to those found in the non-ODF villages (OR=1.44, 95% CI, 1.10-1.88). In terms of child feces disposal, those who live in ODF places dispose properly as compared to those who live in non ODF areas (OR=2.4, 95%CI 1.959, 2.950). Among the latrine owners 1162 (93.3%) are very happy or moderately happy with the latrine they were using. However, 1645(94%) of the latrine owners have explained their interest to adopt more improved latrine type than the current simple pit latrine; among these, 66.8% mentioned that they can afford to adopt. In the qualitative study, it was revealed that sustainability of latrine structure is a big problem. The participants mentioned that the average life time of a latrine in many places is 6 months as the wooden
slab decomposes with the soil and flooding. Strong logs are no more available due to deforestation, and buying them (if available) has been unaffordable for most of the villagers.

**Conclusion:** From this study in can be concluded that, there has not been reduction in the incidence of diarrhea due to the CLTS intervention. Instead, the accelerated campaign resulted in mass construction of non improved latrines. However, there have been improvements in hygienic practices in the ODF villages. It is a lesson that provision of affordable and sustainable sanitation options which are resilient to environmental effects is required, and interventions targeting certain behaviours need to be conducted.
Hand Hygiene Compliance in University of Gondar Hospital Health Care Workers, North Gondar: Ethiopia. Waleden Worku, MPH, SPH, AAU; Haimanot G/Hiwot, MSC, EOHS, UOG; Bikes Destaw, MPH, EOHS,UOG; Manay Kifle, MPH, EOHS, UOG; Desalegn Temelke, MPH, EOHS,UOG; Mesafint Molla, MPH, EOHS,UOG; Ansha Nega, MSC, EOHS, UOG.

Background: Health care-associated infections (HAI) are an important public health problem because they occur frequently, cause morbidity and mortality and represent a significant burden among patients, health-care workers and health systems.

Objective: To assess Hand hygiene compliance in University of Gondar Hospital health care workers, North Gondar: Ethiopia.

Methods: This study was a prospective observational survey on Health care workers of hand hygiene compliance in all wards of the university of Gondar Hospital. The observational survey was conducted over a 24 h period in three shifts in February 6 to May 11, 2012 for three month in university of Gondar teaching hospital. Data were collected at patient bedsides and at regular points throughout the hospital. Direct observation was the gold standard to monitor compliance to optimal hand hygiene practice and observations were using a validated hand hygiene observation tool and pretested structured questionnaire. Within each 20 min time-period all opportunities observation classified as one of five moments: before patient contact; before an aseptic task; after body fluid exposure risk; after patient contact; and after contact with patient surroundings. Each opportunity coded as to individual complied (took the opportunity to wash her/his hands) or not. Participants were doctors, nurses, and other Health care workers. The data checked, coded and entered to SPSS version 20 statistical package and for analysis. Multivariate logistic regression analysis carried out to evaluate the combined effect of multiple risk factors, adjusting for confounding variables.

Result: a total of 1879 observation opportunities were recorded in three shifts in nine wards. The average hand hygiene compliance rate was 27.35 %. There is a statically significance of profession and ward type with hand hygiene compliance. Health workers working in wards in the surgery department is 2.3 times more likely to be hand hygiene non-compliance compared to health workers working wards in gynecology department (OR= 2.30%, CI 1.03-5.17). Being a doctor is 83.8% more non compliance for hand hygiene than nurses (OR=0.16%, CI 0.09-0.28).

Conclusion and Recommendation: Hand hygiene was given less attention in professionals. This highlights the need to improve hand hygiene by in service training and need further research to identify factors related to non compliance.

Keywords: Hand hygiene compliance, Hand rub, Hand wash, Hand hygiene action, Opportunity.
Impact of Hand-washing with Soap and Nail Clipping on Intestinal Parasitic Infections in School-aged Children: a Factorial Randomized Controlled Trial. Mahmud Abdulkader Mahmud, Mark Spigt, Afework Muhgeta Bezabih, Ignacio Lopez Pavan, Geert-Jan Dinant, Roman Blanco Velasco. 1Department of Medical Microbiology and Immunology, College of Health Sciences, Mekelle University, Mekelle, Ethiopia. 2Department of Family Medicine, CAPHRI School for Public Health and Primary Care, Maastricht University, Netherlands. 3Department of Public Health, College of Health Sciences, Mekelle University, Mekelle, Ethiopia. 4Catalanian Health Institute. Sant Carles 79 08921 Santa Coloma de Gramenet, Barcelona, Spain. 5Department of Family Medicine, CAPHRI School for Public Health and Primary Care, Maastricht University, Netherlands. 6Department of Surgery, School of Medicine, Alcalá University, Madrid, Spain.

Background: Intestinal parasitic infections are highly endemic among school-aged children in resource-limited settings. To lower their impact, complementary preventive measures should be implemented that are sustainable with available resources. The aim of this study was to assess the impact of hand-washing with soap and nail clipping on the prevention of intestinal parasite re-infections.

Methods and Findings: Three-hundred-sixty-seven parasite negative school-aged children (aged 6-15) were randomly assigned to receive both, one or the other, or neither of the interventions in a 2x2 factorial design. Assignment sequence was concealed. Following six months follow-up, stool samples were examined using direct, concentration, and Kato-Katz methods. Haemoglobin levels were determined using a HemoCue spectrometer. The primary outcome measures were prevalence of intestinal parasite re-infection and infection intensity. Analysis was by intention-to-treat. Fourteen percent (95% CI: 9% to 19%) of the children in the hand-washing with soap intervention were re-infected versus 29% (95% CI: 22% to 36%) in the controls (OR 0.39). Similarly, 17% (95% CI: 12% to 22%) of the children in the nail clipping group were re-infected versus 26% (95% CI: 20% to 32%) in the controls (OR 0.57). Significant reduction in arithmetic mean egg per gram (epg) of stool was observed among children in the hand-washing with soap (54 vs. 82 epg, p=0.001) and the nail clipping (53 vs. 90, p=0.032) groups. Likewise, following intervention, 13% (95% CI: 8% to 18%) of the children in the hand-washing group were anemic versus 23% (95% CI: 17% to 29%) in the controls (OR 0.49).

Conclusions: Hand-washing with soap at key times and weekly nail clipping decreased intestinal parasite re-infection rates and worm mean loads. Furthermore, hand-washing intervention significantly reduced anemia prevalence in the children. The next essential step should be developing more effective approaches to promote hand-washing with soap and nail clipping that are less burdensome.

Keywords: Intestinal parasitosis, Hand-washing with soap, Nail clipping, School-aged children, Factorial randomized controlled trial.
DDT Residue in Maize Consumed in Complementary Diets: Risk of Infants in South West Ethiopia. Seblework Mekonen, MSc; Argaw Ambelu, PhD, Department of Environmental Health Sciences and Technology, Jimma University; Mekitie Wondafrash, MD, MSc; Department of Population and Family Health, Jimma University, Pieter Spanoghe, PhD, Ghent University.

Infants in Ethiopia consuming food items such as maize in complementary diets may be exposed to toxic contaminants like DDT. Maize samples were collected from the households visited during a consumption survey and from markets in Jimma zone, Ethiopia. The residues of total DDT and its metabolites were analyzed using the Quick, Easy, Cheap, Effective, Rugged and Safe (QuEChERS) method with dispersive solid phase extraction cleanup (d-SPE). Deterministic and probabilistic methods of analysis were applied to determine the consumer exposure of infants to total DDT. The results from the exposure assessment were compared with the toxicological end point, in this case the provisional tolerable daily intake (PTDI). Total DDT was detected in all maize samples (n=127) with a mean concentration of 1.770 mg/kg, which was far above the corresponding maximum residue limit (MRL). The mean and 97.5 percentile intake of total DDT for consumers only were 0.011 and 0.309 mg/kg bw/day for deterministic and 0.011 and 0.083 mg/kg bw/day for probabilistic exposure analysis. For total infant population (Consumers and non-consumers), the 97.5 percentile intake were 0.265 and 0.032 mg/kg bw/day from the deterministic and probabilistic exposure analysis, respectively. Health risk estimation revealed that, the mean for consumers only and 97.5 percentile estimated daily intake of DDT for both consumers only and total population were above the corresponding PTDI. This indicated that, DDT concentration found in maize samples above the safety level may pose a chronic health risk for Ethiopian infants.

Key words: Food safety; Infants; DDT residue; Dietary exposure; Risk assessment

Introduction: Promotion and utilization of effective and convenient family planning methods in countries with high birth rates and limited resources have a potential to improve maternal and child health. These could reduce the costs of achieving millennium development goals. However, the contribution of long acting contraceptives (sterilization, intrauterine device, and implant) in Ethiopia is very low. Thus, the aim of this study was to identify the determinants of long acting contraceptive use in Ethiopia and to improve its utilization.

Methods: Unmatched case control study design was used from 2011 Ethiopian Demographic and Health Survey. Questionnaire was used to extract data from EDHS data set. The extracted data was transformed, edited and recoded using SPSS data editor command. Cross-tabulation was used to describe cases and controls. Logistic regression analysis was used to identify the determinants of LACs use. Strength of the association was assessed using odds ratio with 95% confidence interval.

Result: The mean age of cases and controls were 32±7 and 31±9, respectively. Sixteen seven (18.4 %) of cases have secondary and above level of education. One hundred seventy five (48.1%) of cases had work at the time of the survey. Among the cases, 199 (54.7%) want no more children. Secondary and above level of education [AOR (95%CI) =3 (1.5, 5.0)], working women [AOR (95%CI) =1.7 (1.3, 2.2)] and exposure to family planning message through media [AOR (95% CI) = 1.5 (1.1, 2.0)] were significantly associated variables to use long acting contraceptive.

Conclusions and recommendations: Educational and working status of women, visit by family planning workers, exposed to family planning message and want no more children have positive influence on LACs use. Provision of information about long acting contraceptive and encouraging women to complete secondary level of education and above are important to improve LACs utilization.

Keywords: long acting contraceptives, EDHS 2011, Ethiopia
Modern Contraceptive Discontinuation and Associated Factors among Women on Marriage in Agarfa District, Bale Zone, South East Ethiopia. Tolesta Bekele, MPH. Department of Public Health, College of Medicine and Health Sciences, MaddaWalabu University, Bale Goba, Ethiopia. Alem Gebremariam, Department of Public Health, College of Medicine and Health Sciences, Addis Ababa University, MPH in Epidemiology and Biostatistics. Adigrat Tigray, Ethiopia. Papelon Tuna, MSc in Human Nutrition. Department of Nursing, College of Medicine and Health Sciences, MaddaWalabu University, Bale-Goba, Oromia, Ethiopia

Background: Contraceptive discontinuation for reasons other than the desire for pregnancy is a public health concern because of its association with negative reproductive health outcomes. Discontinuation rate is increasing with a remarkable figure in Ethiopia. However, factors associated with modern contraceptive discontinuation have not been investigated among women on marriage in the country. This study was conducted to determine the magnitude and factors contributing to discontinuation of modern contraceptive methods among currently married women in Agarfa district, Bale Zone, Oromia, Ethiopia.

Methods: A community based cross-sectional study supplemented by qualitative method was conducted in Agarfa district. A total of 788 women on marriage aged 15-49 years were involved in the survey. Study participants were selected through systematic random sampling technique. The data were collected using structured interviewer administered questionnaire, and analyzed using SPSS version 21. Multivariate analysis was computed to identify the independent predictors of contraceptive method discontinuations. In-depth interview was conducted for the qualitative part of the study and thematic analysis was used for analysis of the qualitative data.

Result: The magnitude of discontinuation for all modern contraceptives was 25.5%. The highest discontinuation rate was for injectable. The main reasons for the discontinuation were to get pregnancy, fear of side effects, partner disapproval and method failure. The principal factors which have been found positively associated with modern contraceptive discontinuation are presence of Television in home (AOR=1.8, 95% CI: 1.16-2.87), decision made by husband only (AOR=2.76, 95% CI: 1.22-6.24), method failure (AOR=3.24, 95% CI: 1.84-5.70), and participants’ perception that modern contraceptive can harm the womb (AOR=2.46, 95% CI: 1.47-4.10). Whereas, increased family size (AOR=0.88, 95% CI: 0.80-0.97), participants’ perceptions that their partner supports family planning use (AOR=0.40, 95% CI: 0.20-0.80) and family planning is beneficial to the family financially (AOR=0.20, 95% CI: 0.05-0.76) have been found negatively associated with modern contraceptive discontinuation.

Conclusion: The magnitude of modern contraceptive discontinuation for all methods is still high even though lower than the national and international findings. Family planning providers should improve quality of family planning counseling on all of the family planning methods, address misconceptions and fears that exist about modern contraceptives and highlight the benefits of family planning during family planning counseling. Husbands need relevant information to participate responsibly in making decisions on contraceptive so as increase their support to women on contraceptive utilization.
Addressing Missed Opportunities for LAFP: PP-IUCD Services in Public Health Facilities. Gernay Adane (MPH), Regional FP Coordinator in IFHP; Mekelle; Yewondwosen Tilahun (MD, Gynec Obst); Habtamu Zerihun (MSc); Ismael Ali (MPH)

Significance/Background: Although use of FP has increased dramatically over the last decade, access to and utilization of Long Acting Family Planning (LAFP) methods is still very limited at 4.2% (EDHS). Provision of IUCD in the immediate postpartum period offers an effective and safe method for spacing and limiting births. The increasing trend in institutional delivery provides an opportunity to provide women with easy access to immediate PP-IUCD services. In Ethiopia, the PPIUCD service as part of the post-partum FP method has not been reported in the EDHS 2011.

The integrated Family Health Program (IFHP), as a major FP/RH partner to the MOH, started a learning phase of PP-IUCD in the public health facilities since July 2013. The support focused on increasing knowledge and skills of health care providers about the PPIUCD, and providing equipment and supply after the training.

Program Intervention/activity tested: Availing PPIUCD through knowledge and skill based training of health care providers, post-training equipment and consumable supply help reduce unmet need in the public sector facilities.

Material and Method /Program Implementation: The learning phase of the post-partum IUCD program was started in July 2013 by selecting 17 health centers in the first round and expanding to 32. These health centers are from the four major program regions and already have health workers trained on interval IUCD and providing services. A standard training manual from the MOH was used for the 2 weeks theoretical, simulated model training and clinical practice on actual clients to train clinical care providers working in the delivery unit of the health facilities. After the training each health facility was provided with 4 PP-IUCD kits and consumable supplies to initiate the service immediately. Client characteristics data was collected during and after the training until September 2014. After 14 months follow-up and mentoring, program review meetings were conducted to assess the initial learning phase of the program.

Results: A total of 150 clinical care providers were trained on PP-IUCD skills and counseling. All health facilities received the post-training PP-IUCD kits, consumable supplies and started to provide the PPIUCD immediately after training. During the follow-up period, there were a total of 8,374 deliveries in the 49 health facilities, 1,647 women (19.6%) received PP-IUCD services. Of these, 63% were post placental insertions, 30.9% early post-partum and 4.3% were intra-caesarian PPIUCD insertions. A total of 71 intra-caesarian IUCD insertions were performed in 3 health centers providing emergency surgical delivery services.

Most of the women (69.5%) that received PPIUCD were between 20-35 years and the rest (35%) above 35 years. Majority of clients (62.4%) were counseled during early labor, 29.7% during ANC services and the remaining during the post-partum period. Close to 40% of the women that received the service had four or living children 16% of them had only one child. After 6 weeks of follow-up visit, 53 (3.2%) expulsions were reported and removal was performed in 16 (0.97%) of the clients, 7 removals were due to excessive vaginal bleeding, 4 women reported to have severe lower abdominal pain, 2 of them did not give any reason, and 2 clients said they did not want the PP-IUCD. Other 21 clients reported to have minor
abdominal discomfort, increased vaginal discharge, and headache, in which case, they were re-assessed and after proper counseling reassurances was given.

**Program implications/lessons:** Through PP-IUCD skills training of clinical care providers, and provision of post-training PP-IUCD kits, consumable supplies, regular mentoring and follow-up, it was possible to avail the PP-IUCD services in the public health facilities and increase the post-partum FP method mix. It is also important to strengthen counseling for PP-IUCD (and for PP-FP in general) during the ANC visits so that clients will have time to identify and decide on the FP method of their choice.
Identifying the Near-Term Benefits of Family Planning Investment in the Amhara Region Ethiopia. Alexander Paxton; Tewodros Bekele; Karabachew Abera; Aragaw Lamegus; Mulusew Lejalem

Background: Ethiopia has made phenomenal progress in improving the percentage of women of reproductive age who use family planning. From 2005 to 2014, there has been an average increase in contraceptive prevalence rate (CPR) of 3.0 percentage points each year. By 2014 CPR among married women had reached 42 percent – from 15 percent in 2005. In Amhara Region, the progress has been even greater, with CPR estimated at 46 percent and has sustained an average CPR increase of 3.3 percentage points per year. However, despite the significant effort and achievements, the CPR is highly dependent on short-term FP methods, and unmet need for family planning is still high at 19 percent in Amhara. This submission, tests the hypothesis of the near-term health and economic benefits of investments in family planning using Impact Now model, a new model developed by USAID funded Health Policy Project (HPP) that fills an important knowledge gap in the FP/RH advocacy landscape, demonstrating the near-term gain generated by increasing FP uptake.

Methodology: The Impact Now application involved many stages of review, including introducing the model to stakeholders to provide input on which policy goals to model and what assumptions about the future would be made. Amhara regional and national data, as well as some default proxy data, were also reviewed and validated at the workshop. Based on the changes in CPR and method mix over time, two policy scenarios were determined for analysis: (1) “Current trend scenario”, and (2) Rapid progress scenario. The Rapid Uptake scenario assumes that 73 percent of married women will be using contraception by 2020 and that a greater proportion will use implants, IUDs, and female sterilization, and the Current Trend scenario, which assumes an increase in CPR is in line with current trends and maintains current method mix and CPR 66 by 2020.

Results: Increasing the CPR and expanding contraceptive choices would avoid unintended pregnancies and save the lives of women and children. The analysis shows that current trends of contraceptive scale up is projected to save the lives of 11,700 mothers and 101,000 children from 2014 to 2020. However, increasing access to contraception further, while also expanding the method mix and use of LAPMs through Rapid Uptake scenario, could increase these gains to 13,000 mothers’ and 112,000 children’s lives saved. Compared to current trends, achieving even more rapid uptake of FP and a more robust shift toward a comprehensive method mix, Amhara regions could save an additional US$19 million in maternal and child healthcare costs by 2020, and US$14.3 million in FP program costs over current trends. Currently, Amhara region saves US$1.48 in near-term maternal and child healthcare costs for every US$1 spent on family planning. However, with the greater uptake of LAPMs in the Rapid Uptake scenario, this ratio could be increased to US$2.35 in savings for every US$1 spent in 2020.

Conclusion: Impact Now analysis shows that further investments in family planning in Amhara region can help women and families meet their reproductive desires while offering significant health and economic benefits in the near term. To enhance these gains, the Amhara Regional Health Bureau and development partners must continue their efforts to ensure increased and sustained investment in family planning, expanded appropriate method choice, and improved quality of FP services.
Religion, Wealth and Household Headship Predicting Contraception in Pastoralist Communities of Ethiopia. Wubeziger Mekonnen (PhD)\textsuperscript{1} · Alemayehu Bogale (MPH)\textsuperscript{2} · School of Public Health, College of Health Sciences, Addis Ababa University, Ethiopia \textsuperscript{1} · College of Health and Medical Sciences, Haramaya University, Ethiopia.

**Background:** Ethiopia is one of the most populous countries with a certain proportion of pastoralists. Low contraception remains a major public health problem in pastoralists due to remote access to facilities, shortages of staffs and high family size norm. The aim of this study is to determine the prevalence of contraception and its association with religion, wealth, household headship status and region of residence in pastoralist communities of Ethiopia.

**Study Design and Methods:** The study used women’s dataset from the 2011 Ethiopian Demographic and Health Survey. The survey was designed to provide national, urban/rural, and regional estimates of key health indicators. The study used 2,724 married women of reproductive age group in rural pastoralist communities of Afar, Somali, Gambella and Benishangul Gumuz regions of Ethiopia. The sample was selected using a two-stage stratified cluster sampling procedure. Odds ratio along with 95% confidence interval in binary logistic regression was used to see the association of religion, wealth and household status with contraception.

**Original Data and Results:** Around one in ten (11%) of married pastoralist women used any methods of family planning in 2011. Unmet need was 22.6% while 427 (15.7%) was attributed for spacing and 187 (6.9%) was for limiting. The total demand for family planning was only 33.6% among pastoralist women in Ethiopia. Women in the richest wealth quintile (AOR=24.28: 95% CI (13.43 - 43.90), Muslims (AOR=0.39: 95% CI (0.27 - 0.56), residents of Gambela region (AOR=5.31:95%CI (2.81 - 10.04) and living in female headed households (AOR= 0.48: 95%CI (0.30 - 0.78) were with family planning use.

**Conclusions and Recommendations:** Contraception was low with only a third of women demanding for family planning. Religion, sex of household head, wealth status and study region predicted family planning use. Targeted interventions should be put in place to enhance contraception.

**Keywords:** Family planning use, Religion, Wealth, Pastoralist communities, Ethiopia
Drop Out of Newly Diagnosed HIV Infected Adults from Routine Pre-ART Care in Public Hospital, Harar Town, Eastern Ethiopia. A Retrospective Cohort Study. Tesfaye Digafo, Haramaya University, College of Health and Medical Sciences,

Background: In resource-poor countries, including Ethiopia, access to ART has improved during the last years and mortality rates among treated patients have declined substantially. However, compared to patients in high-income countries, patients in resource-poor countries are at higher risk of death in the early months of treatment. To avoid such early deaths the identification of possible risk factors and potential causes of deaths, and strengthen the pre-ART and ART follow up program are very important. The general objective the study is to determine the rate of early drop out of newly diagnosed HIV infected adults not yet eligible for ART and to identify baseline predictors associated with pre-ART drop out in public hospitals in Harar town, Eastern Ethiopia.

Methods: A facility based retrospective cohort study was conducted among 432 HIV infected individuals in Hiwot Fana Specialized University Hospital. These HIV infected individuals were registered in pre-ART program between the accrual period [between January 1, 2008 and December 31, 2013] and randomly selected from the selected ART clinic. Appropriate analyses were done using Epi info 3.5.1 and SPSS version 16.0. Baseline characteristics of the cohort were described. Cox Bivariate and multivariate analysis were performed to assess for individual predictors of drop out. Kaplan-Meier (KM) method and log rank test were also used to estimate the survival probability and to compare survival curves, respectively.

Result: From the total 432 patients included in the study, 67.6% (n=292) were female. Age of study participants ranged from 16 to 74 years with median age of 30.0 years (IQR=25.0, 36.80). The average CD4 cell count was 315.8 cells/ul. The mean Body Mass Index (BMI) was 20.3kg/m2. The cohort was followed for 1605 Person-Months of Observation (PMO). During the follow up period, 163 (37.7%) patients were drop out the pre-ART follow up. Total drop-out rate over the follow up period was 10.16 per 100 person-months (163/1605). Non follow-up and Lost to Follow-ups were 18.1% (n=78/432) and 19.7% (85/432), respectively. Kaplan Meiersurvival function test showed that sex (Log rank=8.72, p=0.003) and base line HIV disclosure status (Log rank=17.5, p=<0.001) of the patient had strong association with drop out. Baseline Educational and Marital status were also significantly associated with drop out [Log rank of 24.9 (p=0.003) and 17.4 (p<0.001), respectively]. Among different base line variables incorporated in Cox Bivariate Model, Sex, Educational, and Marital status showed significant association with dropouts. During the multivariate analysis, four baseline factors could be independently identified by a Multivariate Cox Model: [Sex (being female) (HR=1.52; 95% CI=1.01-2.3, p=0.04); Educational status (no formal education) (HR=2.63; 95% CI=1.32-5.23, p=0.006); HIV status disclosure (nobody knows) (HR=1.63; 95% CI=1.14-2.32, p=0.006), and Marital status (Being Never Married) HR=1.86; 95% CI=1.27-2.72, p=0.001].

Conclusion: HIV counseling and testing scale-up is likely to significantly increase the number of diagnosed HIV-infected individuals in care but not yet in need of ART. Intensive plan should be design for the promotion of early HIV diagnosis and strengthening of the patient care pathway of pre-ART follow up through which the patient would be benefited by initiation of ART on the optimum time. Emphasis should also be given to female and uneducated individuals. Additionally, there should be subsequent, preferably, prospective observational studies in the area of pre-ART dropout rate, should be conducted. In summary, to achieve satisfying ART coverage, monitoring of pre-ART patients needs to be improved and strategies to increase retention in care need to be implemented.
Predictors of Early Mortality in HIV-infected Children Initiated with ART at Hiwot Fana Specialized University Hospital. Fekade Arega · MPH; Dumessa Edessa ·
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Background: About 1,400 children under the age of 15 are infected with HIV every day and approximately 90% of these infections also occur in sub-Saharan Africa. The speed of disease progression and death of HIV-infected infants in poor countries is alarming. The aim of this study was to identify predictors of early mortality in HIV-infected children initiated with ART at Hiwot Fana Specialized University Hospital.

Methods: A retrospective cohort study was conducted on 305 children who initiated ART in Hiwot Fana Hospital ART clinics. All children enrolled into the chronic HIV care from September 11, 2010 to March 31, 2013 at the clinic were included. Data was collected from individual patient records from February 2014 to June 2014. The data were analyzed by using SPSS version 16.0. Cox regression analysis was used to adjust for covariates.

Results: Out of 305 children included in the study, 277 (90.8%) of children were alive while the remaining 28 (9.2%) were dead. However, 23 (82%) were dead within the first six month. The major reported cause of death was Tuberculosis infection (32%). About 49% of the children were underweight while 6% were stunted. Baseline bed-ridden health condition (aRR 13.5; 95% CI 3.1, 59.3), baseline low CD4-cell count of <350 cells/mm3 (aRR 3.4; 95% CI 1.1, 10.4); poor adherence for ART treatment (aRR 11.6; 95% CI 4.6, 28.7) increased the likelihood of early mortality.

Conclusions and Recommendations: We found that early mortality of children on ART was highly increased in patients who were bed-ridden, baseline CD4 cell counts <350 cells/mm3 and poor adherence to ART. Hence, early initiation of ART before the fall of CD4 <350 cells/mm3 and educating children or family on the importance of treatment adherence could optimize treatment outcome of HIV-infected children.

Keywords: children, ART, early mortality, predictors
Knowledge Discovery for Antiretroviral Therapy Adherence Prediction: The Case of Bahir Dar Felege Hiwot Referral Hospital; North West Ethiopia. Areteu Tarika, MPH, AIDS Resource Center & ACT Process, Amhara Region HIV/AIDS Prevention and Control Coordination Office, Bahir Dar; Desalegn Tegatu MD, MPH, Department of Health Informatics, University of Gondar, Gondar; Million Mesbesha, PhD, Department of Informatics, Addis Ababa University, Addis Ababa.

Introduction: Data mining is the nontrivial process of identifying valid, novel, potentially useful, and ultimately understandable patterns in data. Despite non-adherence to Antiretroviral Therapy (ART) have serious adverse outcomes 8.3% of the clients in 2008 at Bahir Dar Felege Hiwot hospital become non-adherent. Therefore, using data mining approach, it needs to build a model that predicts non-adherent clients based on pre-ART clients’ data ahead of initiation to ART so that service providers can design a strategy to assist their clients adhere to the therapy.

Objective: It is to uncover knowledge from antiretroviral therapy database using data mining techniques, that helps in identifying important predicting factors and predict adherence to therapy, at Bahir Dar Felege Hiwot referral hospital, North West Ethiopia.

Methods: In guiding the overall knowledge discovery process, Cross-Industry Standard Process (CRISP) data mining methodology were followed. A total of 2,925 adult ART ever started clients’ record at Bahir Dar Felege Hiwot referral hospital from 11th September 2005 - 8th Jan, 2011 were reviewed and used for the knowledge discovery. Experimentation with J48 and Neural Network algorithms implemented in Weka data mining software version 3.6.5 were used to build classifier models.

Findings: Out of the total clients’ record reviewed, 70.53% were adherent and 29.47% were non-adherent to the therapy. Among the many experiments tried, a model built using J48 classifier algorithm on balanced class attribute datasets and 90%-10%, Training- Test instance split mode experiment has the highest (93.14%) correct classification accuracy to determine whether a client will be adherent or non-adherent to the therapy. The model also generated interesting rules (knowledge) like, clients having some set of characteristics (HIV status not disclosed, secondary level of education, weight > 54.5Kg, baseline CD4 cell count > 115/ mm³, WHO stage III, has adherence concern, age >32 years and living out of Bahir Dar), if they are counseled they will not adhere and if not they will adhere to the therapy.

Conclusion: A model built using J48 classifier algorithm on balanced class attribute datasets and 90%-10%, Training- Test instance split mode experiment is found to be the best model and selected to be used in predicting future adherence status of ART clients at the hospital ART clinic. The associated knowledge generated with the model is critically important in devising category specific adherence counseling, follow-up strategy and providing other services so as to increase adherence of a newly to start or existing ART client in the clinic.

Recommendations: The knowledge obtained from the selected model shall be used in day to day decision making process at the hospital ART clinic, services and procedures should center on disclosure status of a client than making consecutive counseling as usual and moreover services and procedures should be category specific than doing uniformly to all clients to save resources and increase adherence of clients at the same time.
Incidence of Treatment Failure and Predictors among HIV/AIDS Adult Patients on ART at Debre-Tabor Hospital, Northwest Ethiopia: A Retrospective follow up study. Lijalem Dagnew Yitbarek; Alemayehu Shimeka Teferra

Introduction: ART has improved survival of patients with HIV/AIDS and improved the quality of life. Ethiopia is now on the third decade with the burden of HIV/AIDS. Commitment is continued to fight this pandemic through HIV/AIDS treatment programs that needs strong evidence about the effectiveness of drugs, treatment failure rates and predictors of failure as early as possible. The aim of this study was to estimate time of treatment failure from ART initiation and to assess predictors among HIV/AIDS adult patients on ART in Debre-Tabore Hospital, Northwest Ethiopia.

Methods: A retrospective follow up study was conducted at Debre-Tabor in 2013. A total of 520 patients were taken as the study subjects. Patients who did not fail for treatment were censored. Data were extracted using structured data extraction tool. Life table was used to determine survival rate of failure at each month and median survival. Cox regression was employed to identify significant predictors of treatment failure. P-value and Hazard ratio was used as a measure of significant association.

Result: Data was collected on total of 520 study participants by reviewing patient records. The total follow up period was 12,518 person months or 1,063 person years. Incidence was 13.4 per 100 person years. Median survival time was 35 months or about 3 years. Sex [HR: 1.7, 95%CI [1.28, 2.25]], ARVs [HR: 0.84, 95%CI [0.65, 1.10]] CD4 [HR: 1.38 95%CI [0.99, 1.91]], WHO stage [HR: 2.80 95%CI [2.15, 3.65]] were identified as significant predictors of treatment failure.

Conclusion and Recommendation: Treatment failure was found to be higher. Treatment failure was higher among patients started ART lately, females, having lower CD4 count, and WHO stage 4. It is very important to start ART earlier giving particular attention to females.

Keywords: Antiretroviral therapy, treatment failure, Debre-Tabor, Retrospective follow up
Determinants of Late Presentation To HIV/AIDS Care among People Living with HIV Receiving Care in Health Institutions of Southern Tigray Zone, Northern Ethiopia: An Institution Based Case Control Study. Geitom Halefom Senbet1, Akilew Awoke Adane2, Yalemrezewod Asefa Gelaw2 Wollo University, Dessie Ethiopia2 Institute of Public Health, College of Medicine and Health Science, University of Gondar, Gondar Ethiopia

Introduction: Late diagnosis and presentation to HIV/AIDS care lessens the benefits of antiretroviral therapy and increase risk of HIV/AIDS transmission. A large number of people present late for HIV care despite free accessible HIV care services. The factors hindering patients' early presentation to HIV care when HIV/AIDS care services are accessible in lower health facilities is not known in Ethiopia.

Objectives: This study was conducted to identify determinants of late presentation to HIV/AIDS care among HIV positives enrolled in HIV chronic care in Health institutions in southern zone of Tigray, Northern Ethiopia.

Methods: An Institution based un-matched case-control study, supported with phenomenology was conducted, among HIV positives enrolled in 6 HIV chronic care clinics in Southern Tigray from March to April, 2014.Cases were late presenters CD4 count <350 cells/μl or WHO stages 3 or 4 and Controls were with CD4 ≥ 350 cells/μl and WHO stages 1 or 2 at first visit. Using 1:2, case: control ratio, 147 cases and 295 controls were included and selected systematically. Multiple logistic regression models were used to identify determinants of late presentation. Qualitative data was analyzed using thematic analysis complementing quantitative findings.

Result: A total of 147 cases and 266 controls participated in the study. In the multiple logistic regression participants aged 25-29 (AOR = 3, CI: 1.2-8.1) and 35-39(AOR = 4.1, CI: 1.4-12.5), having two (AOR = 6,CI: 1.3-28) and more( AOR = 5.2,CI: 1.1-24.8) lifetime sexual partners, with poor social support (AOR = 2.3,CI: 1.2-6.4), in the second wealth quintile(AOR = 3.3,CI:1.3-8.5), who perceived stigma (AOR = 4.4, CI:2.2-8.3) and losing income(AOR= 6.8 CI: 1.8-24.5) as barrier, reported severe illness(AOR = 4.3,CI: 2.26-8) as reason for care seeking presented late, while those who reported protecting family as reason for care(AOR = .19(09 -.37), presented in recent years and who disclosed HIV status to partner (AOR = 0.5,CI : 0.24 - 0.95) presented early compared to their counter parts. Use of non-medical care and male sex also deter timely care in the FGD.

Conclusion: In this study, HIV positives of older ages, low socio-economic status and poor social support, denying disclosure and having perception of barriers in receiving HIV care presented late. Efforts towards promoting early care seeking should target these factors in the area and similar settings.

Keywords: Late presentation, Determinants, Health center, Case-control, Ethiopia.
Evaluation of Maternal and Newborn Health Care Service in Selected 25 Districts of Ethiopia. Akbare Derar, MPH; Abebe Bekele, MS; Theodore Getachew, MS; Mekonnen Tadessa, MS; Habtamu Tekle BSc; MSc student; Terfe Gelibo, MPH, PhD fellow; Sabit Ababor, MPH; Amba Kebede, PhD; Kasahun Amanuel, MPH.

Background: Limited availability, utilization and poor quality of maternal and newborn care are among the main bottlenecks to achieve the desired goal in area of Maternal and child healthcare services. Unlike other safe motherhood cares, there is too little information regarding availability, utilization and quality of maternal and new born care services in Ethiopia.

Objective: The overall objective of the study was to conduct an assessment on the availability and utilization of maternal and newborn health services.

Methods: A cross-sectional both quantitative and qualitative study design was conducted in selected 25 woredas from Amhara, SNNP, Oromiya and Tigray Regions from July to August, 2013. A total of 434 health facilities which includes, 4 hospitals, 123 health centers, and 307 health posts were assessed in the study. Data were collected by a trained nurses and health officers with extensive experience in clinical services. A review of obstetric services, records, cards and/or registration books of mothers treated and/or served in health facilities within the last 12 months prior to the study period was conducted; data were collected using standardized WHO tools which were adapted to local situation and pre-tested. Quantitative data analysis was done using SPSS v 20.

Results: Availability of maternal and newborn services

Findings revealed that at the time of the survey, all hospitals, all health centers and 279 (90.3%) of health posts provide service for pregnant women and their newborns during work hours (8) hours a day and working days, 5 days a week). Out of the 123 health centers, 117 (95.1%) were classified as EmONC facilities, 66.7% of these health centers reported that they have provided BEmONC services in the last 12 months and all the four hospitals have CEmONC services. Nearly 84% of health centers have basic neonatal resuscitation services, for immediate and essential newborn care services. Only one in ten (11.4%) of the health centers were equipped with three life-saving medicines (Oxytocin, Ergometrine and Magnesium sulfate) with adequate quantities all the time. The result of the study shows that, 40% health centers had none of staff trained in BEmONC. About 41% health centers had no staff trained in PMTCT, 54.5% had no staff trained in CFP, 79.7% had no staff trained in NCT, and 29.3% had no staff trained in IMNCI. At health post level 41.4% reported that none of the HEWs trained in clean and safe delivery, 18.8% health posts reported not trained in integrated community case management and 22.7% reported not trained in implantation insertion and 43.4% reported they have not received Integrated Refresher Training (IRT).

Utilization of Maternal and New born services

In the surveyed areas, the overall percentage of deliveries at health facility was 29%. Only six percent of pregnant women were made four or more ANC visits during the length of their pregnancy at health centers and hospital which is lower compared to national coverage. Out of the expected pregnant women 19% received TT1 and 5.42% received TT3+. Sixteen percent of deliveries attended at health facility by skilled health personnel. The average number of newborns who have received care in the last 12 months prior to the survey within two days of birth was 61% in health center
**Conclusion and Recommendation:** Overall, there was a serious lack of supplies and drugs, which are essential at the time of MNCH service delivery to ensure that services are provided properly. There was a great training need to provide MNCH services in the surveyed health facilities. High BEmONC service is provided in health centers. Low IMNCI related training is observed. In general, the result depicted low service and supply availability results low service utilization.

Overall, there is a need of effort for reaching a level where the health facilities would be providing optimum MNCH services. stockholders working on maternal and child health service in the country needs to maximize their effort on availing the necessary drugs, supplies and build the capacity of health professionals engaged to maternal and newborn health care.

**Keywords:** Utilization; Availability
Unmet need of Basic Emergency Obstetric and Newborn care, the way to accelerate the strategy to save mothers and newborns in Ethiopia. Abdu Bedru (BSc, MPHE); Dawit Siyoum, BA, MSc; Abiy Weldemedhin, BSc, PH; Kedir Addisu, BSc, MPH; Mintwab Zenebe, BSc, MPH; Girma Hailemariam, BSc, MPH.

Introduction: Global statistics show that more than half a million women die each year from complications, 99% of which occur in developing world. As a result, reducing maternal mortality has arrived at the top of health and development agendas. Yet almost 60 percent of African women give birth without a skilled attendant and two in three women who need emergency obstetric care do not receive it. At the escalated current rate of decline, Ethiopia is more likely to reach the Millennium Development Goals target for Maternal Mortality by 2015.

Objective: The objective of this study was to assess unmet need of basic emergency obstetric and newborn care (BEmONC) among public hospitals in Ethiopia.

Methods: A facility based cross-sectional study design was applied using structured and pretested questionnaire sub structured into 11 tools. The study was conducted among 7 public hospitals from 31 January 2014 to 1 May 2014. The functionality of the health facility was assessed using 3 months as a reference. The performance of the hospitals were analysed in reference to when and how to manage direct obstetric complications (like antepartum and postpartum haemorrhage, prolonged and obstructed labour, postpartum sepsis, complications of abortion, severe pre-eclampsia and eclampsia, ectopic pregnancy and ruptured uterus), and newborn with problems (like asphyxia, low birth weight or preterm, very low birth weight or very preterm, and generalized sepsis). A cause analysis model was used to identify factors influencing the performance. Obstetric/new born intervention ≥+2SD is considered as performed satisfactorily, obstetric/new born intervention b/n ±1SD considered fairly performed and obstetric/new born intervention ≤-2SD considered performed unsatisfactorily.

Results: The study revealed that the average performance of basic emergency obstetric and newborn care and related health services among the seven selected public hospitals was 50.48%. The range was 13.33%. Consistent use of partograph for decision making, management of severe preeclampsia and eclampsia using MgSO4, post partum hemorrhage recognition and management, newborn resuscitation using Helping Baby Breath methods, and comprehensive Post natal care, availability of obstetric emergency drugs in the delivery ward, women friendly care were obstetric/newborn intervention performed unsatisfactorily. According to the cause analysis model, lack of knowledge and skills on obstetric emergency, poor communication and service integration, shortage of staffs, poor implementation of logistic management information systems and health care financing were the reasons identified affecting the performance of BEmONC in public hospitals.

Conclusions and Recommendations: The performance of BEmONC in public hospitals still seems in its infancy though the interpretation of this study finding should be seriously looked with the incomplete and poor records faced. Narrowing the gaps and providing women centred service through cyclical home based emergency obstetric care to facility based emergency obstetric care integrated with satellite community maternity care is crucial.

Introduction: An estimated 2.9 million newborns die each year globally, and 99% of these deaths occur in low-income countries. Complications from preterm births is the leading cause of neonatal deaths globally causing approximately 35% of all newborn deaths and is also a contributing factor in an additional 40 to 60% of neonatal deaths. Ethiopia has a neonatal mortality rate of 29 per 1,000 live births and very low proportion of births are attended by skilled birth attendants at facility level, with 90% of births taking place at home. Kangaroo mother care (KMC) is a strategy for caring for preterm and low birth weight (LBW) newborns that has been shown to be safe and effective at reducing mortality in facility-based studies. However, little is known regarding feasibility of implementing community based KMC.

Objective: The main objective of the study was to evaluate the feasibility of implementation of community based KMC.

Methods: A prospective feasibility study of CKMCpilot program was undertaken over 18 months between 2012 and 2013. The study was designed as a before-and-after evaluation of the coverage of the Health Extension Worker (HEW) led KMC promotion activities and KMC practices among recent mothers within the pilot catchment areas. During the first phase of implementation, facility-based essential newborn care and KMC were established through support by the Maternal and Child Health Integrated Program (MCHIP) in the 10 selected health centers in the four agrarian regions (Tigray, Amhara, Oromia and SNNP). During the second phase, a total of 174 HEWs were trained to provide antenatal and postnatal counseling to pregnant women to promote KMC. To measure exposure to the program and changes in behavior, a baseline and end line household surveys were conducted with recent mothers residing in the catchment areas of participating health centers. Additionally, role-plays were used to assess HEW’s ability to retain and deliver the KMC counseling messages at 5 months and 20 months following training.

Result: The baseline and end line surveys included 218 and 214 eligible mothers, respectively. Although the provision of ANC by HEWs increased over the study period, coverage remained low (31% of mothers) and only half of those mothers reported receiving counseling on KMC from the HEW (15% of mothers). Overall, the proportion of mothers who received counseling on KMC during ANC from any provider was 40%, a significant increase from baseline of 9% (p = 0.00). The proportion of women who reported delivering at a health facility increased from 31.2% at baseline to 46.7% at end line (p = 0.05). Postnatal health checks with any provider also increased from 12.4% to 23.4% (p = 0.03). Postnatal home visits from HEWs remained low but increased from 2.3% to 11.7% (p = 0.00). Very few mothers received a postnatal health check from an HDA member (less than 2%).

The proportion of women who received targeted counseling on KMC has also increased from 14% to 43% (p = 0.00). The use of skin-to-skin care at any time following delivery increased from 13% to 44% (p=0.00), with facility deliveries having much higher skin-to-skin practice at end line than home deliveries. Delayed bathing and breastfeeding practices in the first three days after birth also improved between baseline and end line from 28% to 44% (p = 0.01) and from 52% to 68% (p = 0.00), respectively. Results from the role-play assessments of HEW counseling skills indicated that HEWs retained the majority of the knowledge and skills
that they gained during the KMC training. When HEWs were asked to demonstrate how they would instruct a new mother in the practice of KMC, 93% of them delivered most of the 10 required messages during the simulated observational assessment following training, this has dropped to 60% at the end line.

Conclusions and Recommendations: Overall, our findings suggest that moderate increases in skin-to-skin care and exclusive breastfeeding can be expected for home and facility births in areas implementing a community-based KMC in addition to a facility-based KMC. There is a low level of contact by HEWs with pregnant and postpartum women, especially within the first week after birth. Even though the end line survey showed that home visits by HDA immediately after childbirth is surprising low, this is a structure that could be used to strengthen counseling and support provided to pregnant women and recent mothers to adopt key essential newborn care behaviors including KMC. We recommend that FMOH and its implementing partners explore how to integrate the promotion and support to pregnant women and recent mothers in the community based newborn care, and assess various mechanisms for increasing home visits during antenatal and postnatal period by HEWs and members of HDA. In addition, if implementing this approach on a larger scale, further study should be conducted to follow up the outcomes of babies who received community-based KMC as compared with babies who were cared for in a facility to investigate any adverse effects with this approach.
Evaluation of Laboratory Request Forms in St. Paul Millennium Medical College Hospital in Addis Ababa, Ethiopia. Eden Giragni, Ededia Firdawoke, Abra Solomon, Haïmanot Birhanu, Lily Girma, Sitra Mustafa, Dr. Aster Tsegaye, Kassu Desta*Department of Medical Laboratory science, college of Allied health, Addis Ababa University, Addis Ababa, Ethiopia

Background: Most errors in laboratory medicine occur in the preanalytical phase and are the result of human mistakes. Errors made during the preanalytical phase (i.e., procedures performed neither in the clinical laboratory nor under the direct control of laboratory personnel) can have profound effect on clinical care. Specifically, the laboratory request form is the first line of communication between the specimen submitting facility, agency or physicians and the laboratory. These forms are available upon request to the laboratory. The request form may be in paper or electronic format. Correctly completing this form will ensure a patient and specimen are properly identified and matched. Correctly designed and properly completed request forms are essential for the performance of all laboratory tests to the benefit of the client and the satisfaction of requesting physicians. This study evaluated the frequency of incomplete laboratory request forms in St. Paul Hospital.

Methods: The research was carried out in St. Paul’s Millennium Medical College hospital at Gullele sub city Addis Ababa, Ethiopia. A total of 2300 request papers in about five days were collected from all departments of the laboratory as to carry out this prospective cross-sectional study. The principal investigators had been collecting the data using check list and taking picture of the laboratory request forms at the different departments of the laboratory. Every request form was checked consecutively. Microsoft excel software and SPSS-20 were used for analysis. The study was approved by the Institutional Ethical Review Committee.

Results: The overall frequency of incompleteness of laboratory requisition forms was tabulated in the different specific laboratory departments regarding client information, clinical information, specimen information, clinician information and other parameters. From the total of 2300 request papers client’s name was missing on 0.2% papers while client’s gender, client’s age, card number, date and ward has been missed in a frequency of 7.6%, 9.5%, 1.1%, 9.3% and 3.3% respectively. The highest incompleteness that is 69.4% in name of the physician and 48.4% in signature of the physician in charge was observed. Every parameter was also tabulated for each department.

Conclusion: This study demonstrates that, the standard of completion of request forms at our study site is poor. The request forms did not contain adequate demographic data of the subjects. Clinical details of the clients were not supplied on an appreciable number of the request forms. Details of the requesting clinicians were also lacking. Though a good completion of name, date and card number have been appreciated in this study, the high report of unreadable handwriting makes it difficult to be used as a complete information. We recommend that there should be adequate communication between laboratory personnel and clinicians as to insure that clinicians got aware of hazards and financial burden of excessive unnecessary test requests. Medical students should be adequately exposed to the medical laboratory and how it functions; this will help them understand the complimentary roles played by clinical and laboratory practice.
Assessment of the Private Wing Health Care Service Provision in Public Hospitals of Addis Ababa, Central Ethiopia. Abate Zeudie, MPH, Community Based Health Insurance Coordinator, Oromia Regional Health Bureau; Yohannes H/Michael (PhD candidate); Kora Tushune (PhD candidate)

**Background:** The establishment of private wing health care services in public hospitals is one of the components of health care finance reform. Currently most public hospitals in Addis Ababa have established private wing. However information is lacking on the health care service provision of the private wing.

**Objectives:** To assess the private wing health care service provision and level of clients’ satisfaction in public hospitals under Addis Ababa City Administration Health Bureau.

**Methods:** A cross sectional exploratory study, employing both quantitative and qualitative study designs, was conducted in four public hospitals of Addis Ababa from March 2-17, 2012. The data was collected by using structured questionnaire, interview guide and observation check list. Quantitative data was analyzed by SPSS version 16.00 and the qualitative data was translated to English language, transcribed, coded and summarized thematically. Ethical clearance was obtained from the Ethical Review Committee of the College of Public Health and Medical Science of Jimma University.

**Results:** The questionnaire was administered to a total of 403 clients, of which, 51.9 % were male, the mean years of age of the respondents were 41.9 ±15.4 and 87.6% were residents of Addis Ababa. The overall client satisfaction level with the health services rendered at medical OPD of private wing was rated as satisfied by 77.9% clients with mean of 3.82 ± 0.78. The mean satisfaction score was low with unavailability of drugs and waiting time to be seen by a doctor 2.77 ±1.21 and 2.86 ±1.18 respectively. While mean satisfaction score was high 4.17 ± 0.82 with perceived time spent with doctor. In many aspects the private wings in the study hospitals deliver health care services according to the guide line. But, the private wings in the study hospitals have no annual activity plan and financial plan.

**Conclusion:** This study shows that waiting time to be seen by a doctor p < 001, not being able to get health information/counseling p < 001, inability to get some lab request p < 001 and did not get all prescribed drugs p < 001 were identified as independent predictor of clients’ satisfaction. Furthermore, all the study hospitals provide outpatient services in the private wing and have no inpatient service and this dissatisfy both clients and providers of the private wing. Therefore the hospital management should understand this and plan for a better service delivery.

**Keywords:** private wing, public hospitals, Addis Ababa, client satisfaction
A Gateway to Newborn Survival: Learning from a Comprehensive Approach for Mothers and Their Newborn Babies: The Case of Tigray Region.  
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Introduction: Most (60%) of maternal and neonatal deaths occur during labor and delivery. Interventions aimed at improving maternal survival at this time often determine newborn survival as well. Additionally, this time provides an opportunity to offer important newborn care packages such as ensuring breathing, drying and rapping, cord care, eye care and breast feeding that is known to markedly affect survival. A number of factors affect access & utilization of services thus requiring a holistic approach. Integrated Family Health Program (IFHP) supported the public health system by implementing a comprehensive Maternal and Newborn Health (MNH) interventions to improve access and utilization of MNH services. This comprehensive approach addresses health facility preparedness for quality services, strengthening referral system and creating demand. This study was done in 25 health centers found in five woredas of Tigray region.

Objective: To determine effect of comprehensive MNH interventions on improving access & utilization of Essential Newborn Care (ENC) provided by skilled birth attendants.

Method: A cross-sectional pre and post intervention assessment was done for comprehensive maternal and newborn health intervention. A package of intervention was implemented chronologically. Orientation was given to Woreda health office staffs to solicit support. IFHP then trained health care providers in BEmONC and provided medical supplies to health facilities. Front line health extension workers (HEWs) were subsequently trained on specific topics such as pre and postnatal care, danger signs, birth preparedness and essential newborn care. Referral system was strengthened. Regular follow-up and mentoring was conducted following trainings. IFHP then conducted sensitization activities at district and community levels to create demand for services. Baseline survey was taken in March 2011 and end line survey in March to April 2014 using the WHO Service Availability & Readiness assessment (SARA) tool. Data were collected by trained data collectors, entered in to SPSS version 20 and analyzed after data cleaning. Ethical approval was obtained from the regional health bureau.

Result: Data were collected from all 25 health centers. The average catchment population was 25,201 per health center. All health centers were staffed by midwives and nurses with no difference between baseline and end line assessments. Almost all (96.3%) health centers were staffed with at least 2 Basic Emergency Obstetrics and Newborn Care (BEmONC) trained staffs compared to only about a third (34.6%) at the baseline, a marked increment of nearly by two fold. Among the ENC services availability, marked improvement were observed on ensuring breathing (from 11.5% to 81.5%), on drying and wrapping (from 34.6% to 96.3%) and on initiating immediate thermal protection (from 19.2% to 96.3%) which are most important for newborn survival. Maternal and newborn health services utilization increased from 13.1% to 39.7%, from 47.1% to 93.7%, and from 18.2% to 54.6% for skilled delivery, 1st ANC and 1st PNC respectively.

Conclusion: Evidence based intervention when implemented systematically and chronologically improves service availability and utilization thereby improving newborn survival.
**Recommendation:** Integration of newborn interventions with sepsis management and maternal health interventions to address the most common cause of newborn death is a valuable approach. Moreover undertaking larger study would clearly provide the clear picture.
Risk Factors For Low Birth Weight: A Case-Control Study in Bale Zone, Oromia Region, South-East Ethiopia. Habtamu Demelash1, AbebeMothin0r1, DaibereNigotn2, KetemaGashaw2, AddisuMekse3 1 Department of Public Health, College of Medicine and Health Sciences, Maddawalbu University 2 Department of Nursing College of Medicine and Health Sciences, Maddawalbu University 3 Department of Medicine College of Medicine and Health Science Maddawalbu University

Background: Low birth weight (LBW) is closely associated with foetal and neonatal mortality and morbidity, inhibits growth and cognitive development and resulted chronic diseases later in life. Many factors affect foetal growth and thus, the birth weight. These factors operate to various extents in different environment and cultures. The prevalence of low birth weight in the study area is the highest in the country. To the investigator’s knowledge in Bale Zone, no study has yet been done to elucidate the risk factors for low birth weight following case control method. This study aims at shedding light on these modifiable factors.

Methods: A case-control study design was applied from April 1st to August 30, 2013. A total of 408 mothers were included in the study. A total of 387 mothers (136 cases and 272 controls) were interviewed using structured and pretested questionnaire by trained data collectors working in delivery ward. For each case, two consecutive controls were included in the study. All sampled cases and controls were mothers with singleton birth, full term babies, no diabetes mellitus and no hypertension. The data were entered and analyzed by SPSS version 16.0 statistical package. The association between the independent variables and dependent variables (birth weight) was evaluated by bivariate and multiple logistic regression analyses.

Result: Maternal age at delivery <20 years (adjusted odds ratio (AOR)=3; 95% confidence interval (CI)=1.65-5.73), monthly income <26 United States Dollar (USD) (AOR=3.8; 95% CI=1.54-9.41), lack of formal education (AOR=6; 95% CI=1.34-26.90), being merchant (AOR=0.1; 95% CI=0.02-0.52) and residing in rural area (AOR=2.1; 95% CI=1.04-4.33) were socio-economic variables associated with low birth weight. Maternal risk factors like occurrence of health problems during pregnancy (AOR=6.3; 95% CI=2.75-14.48), maternal body mass index <18 kg/m2 (AOR=6.7; 95% CI=1.21-37.14), maternal height <1.5m (AOR=3.7; 95% CI=1.22-11.28), inter-pregnancy interval <2 years (AOR=3; 95% CI=1.58-6.31), absence of antenatal care (OR=2.9; 95% CI=1.23-6.94) and history of khat chewing (AOR=6.4; 95% CI=2.42-17.10). Environmental factors such as using firewood for cooking (AOR=2.7; 95% CI=1.01-7.17), using kerosene for cooking (AOR=8.9; 95% CI=2.54-31.11), wash hands with water only (AOR=2.2; 95% CI=1.30-3.90) and not having separate kitchen room (AOR = 2.6; 95% CI=1.36-4.85) were associated with low birth weight.

Conclusion: Women who residing in rural area, faced health problems during current pregnancy, no antenatal care services, use firewood as energy source were found to be more likely to give low birth weight babies. Improving a mother’s awareness and practice for a healthy pregnancy needs to be emphasized to reverse LBW related problems.

Keywords: Maternal risk factors, low birth weight, environmental risk factors, socio economic risk factors
Determinants of Cessation of Exclusive Breastfeeding in Ankesha Guagusa Woreda, Awi Zone, Northwest Ethiopia: Across-sectional study. Teketew Yemekuro, Tefera Bolachew, Muluneh Haile

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Background: Exclusive breastfeeding (EBF) is defined as practice of feeding only breast milk (including expressed breast milk) and no other liquids and solid foods except medications during the first six months. Regardless of this recommendation, the time to cessation of exclusive breastfeeding is different in different countries of the world being dependent on different socio-demographic factors, obstetric factors and characteristics of the infant. Studies showed that the risk of diarrheal morbidity and mortality is higher among those who are not on exclusive breastfeeding than those who are on exclusive breastfeeding. In Ethiopia, the health extension workers have been delivering this key message since 2005 after the endorsement of the national infant and young child feeding guideline. However, there is no study that evaluated the time to cessation of exclusive breastfeeding in the study area. The objective of this study is to determine cessation of exclusive breastfeeding and its determinants among mothers of index infants.

Methods: Community based cross-sectional study was conducted from February 13 to March 3, 2012 in Ankesha Guagusa Woreda using both quantitative and qualitative methods. A total of 592 mothers of index children were included in the study using multistage sampling method. Data were collected using interviewer administered structured questionnaire. Bivariate and multivariable Cox regression analyses were done to identify factors associated with cessation of exclusive breastfeeding.

Results: In this study, 392 (69.63%) events of cessation of EBF occurred. Among these, 224 (57.1%) events occurred before six months of age, while 145 (37.0%) and 23 (5.9%) occurred at 6 months and after 6 months of age of the index infant respectively. The median duration of EBF was 6.36 months in rural and 5.13 months in urban and this difference was statistically significant on Log rank (Cox-mantel) test. Maternal and paternal occupational status, place of residence, postnatal counseling on EBF, mode of delivery, and birth order of the index infant were significant determinants of cessation of EBF.

Conclusion: An effort that can ensure the implementation of national strategy on IYCF should be undertaken through provision of postnatal care counseling on EBF, routine follow up and support of those mothers having infants emphasizing for working mothers.

Keywords: Exclusive breast feeding, cessation, median duration, Ankesha Guagusa Woreda
Prevalence and Associated Factors of Timely Initiation of Breastfeeding Practice among Mothers at Debre Brehan Town, Ethiopia. Getachew Tilahun, Institute of Medicine and Health Sciences, Department of Public Health, Debre Brehan University; Getu Degu (PHD), College of Medicine and Health Sciences Institute of Public Health, University of Gondar; Mr. Telake Azgile (MPH), College of Medicine and Health Sciences Institute of Public Health, University of Gondar; Miss Askal Tigabu, Quality expert at Ethiopian commodity exchange, Addis Ababa.

Background: Timely initiation of breastfeeding (TIBF) serves as the starting point for a continuum of care for the mother and newborn that can have long-lasting effects on health and development. The World Health Organization (WHO) and UNICEF recommend initiation of breastfeeding within the first hour after birth. In Ethiopia, there is considerable variation on initiation of breastfeeding within one hour by region. It is lowest in the Amhara and Somali regions (38% and 40%, respectively), and highest in the SNNP and Dire Dawa regions (67% and 66%, respectively). There are limited studies conducted on this topic and these few studies used mothers of children up to 24 months that exaggerates recall bias. So that it is necessary to conduct this research to see prevalence and associated factors in the area.

Objectives: To determine prevalence and investigate factors associated with timely initiation of breast feeding practice.

Methods: A cross sectional study was conducted at Debre Brehan town. A total of 416 mothers who have child of age up to 6 months were selected randomly from the community. Data were collected using a structured and pre-tested interviewer administered questionnaire. Descriptive statistics, bivariate analysis and multivariable logistic regression analyses were employed to identify factors associated with timely initiation of breast feeding.

Results: From the total of 416 women with a child of age six months and lower recruited, 409 responded to the questionnaire adequately making the response rate of 98.3%. The Prevalence of timely initiation of breast feeding was (62.6%). Having extended family AOR(95%CI) 0.5(0.271,0.948), not being counseled at ANC AOR(95%CI) 0.43(0.184,0.881), delivery by C/S AOR(95%CI) 0.11(0.037,0.330), delivery attended by TBA/relatives AOR(95%CI) 0.22(0.053,0.868), monthly income of greater than 1969ETB (compared to monthly income of less than or equal to 817ETB) AOR(95%CI) 2.77(1.214,6.322) and not feeding colostrums0.07(0.023,0.228) were associated with timely initiation of breast feeding.

Conclusion and Recommendation: The practice of timely initiation of breast feeding was low as nearly 40% of the mothers did not start breastfeeding within one hour after delivery. Breast feeding counseling during ANC, vaginal delivery, delivery attended by health professionals and higher monthly income were facilitators of TIBF where as extended family and colostrums discarding were barriers to TIBF.

The findings suggest that breast feeding behavior change communication during perinatal period is important in promoting optimal practice in timely initiation of breast feeding. Interventions at family level are important for improving the practice of timely initiation of breast feeding among mothers who live in extended families.

Keywords: Breast feeding, Initiation of breast feeding, Infant feeding practices, nutrition in children, optimal breast feeding practice, neonatal care, maternal and child healthcare.
Factors Affecting Maternity Care Service Utilization among Reproductive Age Women in Jigjiga Town, Somali Regional State, Eastern Ethiopia. Wubarg Seifu Jemberia, (MPH/Epidemiology), Lecturer, Jigjiga University; Beyene Meressa, (BSc, MPH).

Background: In Ethiopia maternal and infant mortality rate in 2005 were 673 per 100,000 and 77 per 1000 live births respectively. One explanation for poor health outcome is due to inadequate utilization of modern health service by the target groups of the population. Therefore this study was conducted to determine proportion and associated factors that affect maternity health care service utilization among reproductive age women living in Jigjiga town.

Methods and Materials A community based cross-sectional study was conducted in Jigjiga town from June (10 - 20) 2011. A total of 722 women who had history of child birth within the last twelve month were included in the study. A multi stage sampling techniques was applied. Initially three kebeles were selected by using simple random sampling method while study households were selected from each kebele through computer generated random sampling technique. Pretested structured questionnaires were used for data collection. Odds ratio with 95% confidence interval was estimated using multivariable logistic regression to identify independent predictors of maternal health care service utilization.

Results: Out of 722 mothers involved in the study 66% had used ANC once for their recent pregnancy. While 115(15.9%) and 179(23%) had gave birth at health institution and had received post natal services from the nearby health institution respectively. The independent predictors for ANC were being younger age (< 35) [AOR=0.67, CI: (0.52-0.780], having positive attitude [AOR=4.8, CI: (3.5-9.0)] and being lower parity [AOR=5.9,CI (3.8-7.2) where as being married[AOR=4, CI:(3.40-9.30]), high income group [AOR=11.6,CI:(8.4-12.4) and having positive attitude [AOR=11.4,CI; (9.3-21.0) were independent predictors for institutional delivery while maternal education [AOR=5.3,CI: (5.2-6.0) was independently associated with post natal care.

Conclusion and Recommendation: The rate of utilization of the three important maternal health services by women in Jigjiga town is lower than the previous studies done in and around Ethiopia as well as international recommendations set by World Health Organization. So that health education addressing both couples to bring about behavioral change should be strengthened in collaboration with stake holders with in the town.

Keywords: Proportion, antenatal care, post natal care, institutional delivery, Jigjiga town
Integrating Strategies for the Prevention of Preeclampsia and Anemia into Community-Based Programs in Ethiopia: A Formative Assessment Result.

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**Background:** Pre-eclampsia/preeclampsia (PE/E) is responsible for an estimated 16% of global maternal mortality and each year more than 50,000 Ethiopian mothers develop PE/E. WHO strongly recommends daily calcium (Ca) supplementation for pregnant women in areas of low Ca intake to prevent preeclampsia. This study is intended to test the acceptability and feasibility of Ca supplementation to inform policy and program development for successful implementation of prenatal calcium supplementation.

**Methods:** The study is being implemented in two districts of West Shewa zone of Oromia region and involves two phases. The formative assessment reported here involved in-depth interviews conducted with 22 health workers and health agents and 20 pregnant women. Respondents were recruited through purposive sampling approach. Interviews focused on barriers against antenatal (ANC); perceptions of ANC & health during pregnancy; and perspectives on prenatal calcium supplementation in the context of iron and folic acid program. Data were collected in phases; between July 2013 to April 2014 and qualitatively analyzed for emergent themes using ATLAS.ti software.

**Results:** Most pregnant women visit health facilities at some time in their pregnancy, though they often make their first visit late in pregnancy. Several categories of factors contributed to delayed or lack of ANC booking including lack of information and less appreciating the benefits of ANC; being ashamed to be seen by health workers; perceiving that ANC is needed only when women are sick; unaware of being pregnant; and various misconceptions related to ANC services. In addition, several socio-cultural factors such as being busy with household chores and field activities; traditional belief system and norms; fear of disclosing the pregnancy; preference for TBAs; fear of HIV test; financial constraints contributed for delayed and lack of ANC visit. Finally, health system related factors included poor reception or mistreatment; unavailability of health workers; underestimation of HEWs’ competency and quality of care also were also important factors.

Regarding perceptions of health in pregnancy, anemia was known as “low blood or blood deficiency,” and it was the experience of most women. However, awareness of PE/E was non-existent among women and also very limited among health workers. In some cases, it was attributed to devils attacked and other several beliefs exist that discourages seeking care for it. Given PE/E perceived as 'high blood', women argued that they cannot have both low blood and high blood at the same time and this apparent contradiction could lead to poor adherence to IFA and/or Ca pills and gives a critical challenge to Ca supplementation program.

**Conclusion and recommendations:** Effective Ca and IFA supplementation depends on timely enrollment of pregnant women to ANC program. However, several individual, system and social and cultural factors contributed to limited and delayed ANC use among pregnant women. In addition, Ca supplementation in the context of IFA program requires effective and individualized behavioral change communication interventions.
Poor Linkages in Maternal Health Care Services-Evidence on Antenatal Care and Institutional Delivery from A Community-Based, Longitudinal Study in Tigray Region, Ethiopia. Yohannes Adama Melaka¹, Berhe Weldearegawi², Fissaha Haile Tesfay³, Semaw Ferede Abera⁴, Lako Abraham⁵, Alemseged Argey⁶, Yemane Ashber¹, Friedjunt Estheta⁷, Ashenafi Haile⁸, Yihanis Lake³, John Kinsman⁹ *Mekelle University, College of Health Sciences ¹Mekelle University, College of Health Sciences, Department of Public Health, Mekelle, Ethiopia ²Mekelle University, College of Health Sciences, Department of Medicine, Mekelle, Ethiopia ³Mekelle University, College of Health Sciences, Department of Nursing, Mekelle, Ethiopia ⁴Center for Disease Control and Prevention, CDC-Ethiopia, Addis Ababa, Ethiopia ⁵Ethiopian Public Health Association (EPHA), Addis Ababa, Ethiopia ⁶Umeå Centre for Global Health Research, Department of Public Health and Clinical Medicine, Umeå University, Umeå, Sweden

Background: Progress towards attaining the maternal mortality and maternal health targets set by Millennium Development Goal 5 has been slow in most African countries. Assessing antenatal care and institutional delivery service utilization and their determinants is an important step towards improving maternal health care services.

Methods: Data were drawn from the longitudinal database of Kilite-Awlaelo Health and Demographic Surveillance System. A total of 2361 mothers who were pregnant and who gave birth between September 2009 and August 2013 were included in the analysis. Potential variables to explain antenatal care and institutional delivery service utilization were extracted, and descriptive statistics and logistic regression were used to determine the magnitude of maternal health care service utilization and associated factors, respectively.

Results: More than three-quarters, 76%, [95% CI: 74.8%-78.2%] (n=1806), of mothers had undergone at least one antenatal care visit during their previous pregnancy. However, only 27% [95% CI: 25.3%-28.9%] (n=639) of mothers gave birth at a health institution. Older mothers, urban residents, mothers with higher education attainment, and farmer mothers were more likely to use antenatal care. Institutional delivery services were more likely to be used among older mothers, urban residents, women with secondary education, mothers who visited antenatal care, and mothers with lower parity.

Conclusions: Despite a relatively high proportion of mothers attending antenatal care services at least once, we found low levels of institutional delivery service utilization. Health service providers in Kilite-Awlaelo should be particularly vigilant regarding the additional maternal health needs of rural and less educated women with high parity.
The Efficacy of Second Generation Antipsychotic Drugs Over First Generation Antipsychotics Drugs: A Systematic Review – Meta Analysis Of Randomized Trials
February 2014. Aschalew Alemu, MSc; Hailemeskel Mekonen, Addis Ababa University, College of Health Science, Addis Ababa, Ethiopia; Shewatatek Gedamu, Jimma University, College of Public Health and Medical Sciences Jimma, Ethiopia.

Background: Atypical or second-generation antipsychotics (SGAs) were hailed as a major advance, principally because of their lower liability for extra pyramidal syndromes. The first atypical drug, clozapine, is the most efficacious of all antipsychotics but is restricted to treatment resistant schizophrenia because of adverse effects. Over the past decade, second-generation antipsychotic medications have become the first-line treatment for schizophrenia. But efficacy of second generation compared with first generation antipsychotic (FGAs) in patients with schizophrenia has not been sufficiently addressed.

Objective: The aim of this study was to conduct systematic review meta-analysis on randomized trials to compare the efficacy of second generation antipsychotic drugs over first generation antipsychotics drugs.

Methods: Eligible studies were identified from databases using key phrases antipsychotic, second generation, first generation, Atypical and typical antipsychotic. Twenty free and full randomized control trial studies were selected from the initial search. Selection were further conducted from randomized, blinded studies for comparing one or more of second-generation antipsychotics in the treatment of schizophrenia with that of first generation or within each other and a dose response comparison among generations. This study includes studies published from 2003 to 2013 and indexed in nature, Pubmed central, and Henari website. The primary outcome measure was change in total score on the Positive and Negative Syndrome Scale (PANSS). Statistical analysis was performed by Comprehensive meta-analysis version 2.2.064 software.

Result: In this meta-analysis only 9 studies fully met the inclusion criteria. Meta-analysis was performed for comparing the difference between or within generations using change in total PANSS score. The analysis produced the odds ratio of 1.407 with 95% confidence interval (1.016-1.948), Z- value of 2.055 and p-value 0.04 among generations. The p-value < 0.05 shows that the result of analysis is statistically significant. The odds ratio fallen above 1 indicates that patients treated with SGAs have shown reduced total PANSS score than those treated with FGAs. But there was no difference in total PANSS score among the same generations.

Conclusion: Total PANSS score results significantly decrease in second generation antipsychotics than first generation antipsychotic.

Recommendation: SGA medications have become the first-line treatment for schizophrenia due to its reduced PANSS.
Harmful Traditional Practices and their Reasons among Children Less Than Five Years of Age in Gondar Town, Northwest Ethiopia, 2014. Mohammed Adem (RN, BScN), Instructor, College of Medicine and Health Sciences, University of Gondar; Anteneh Mesele (RN, BScN, MPH-RH); Name Abebaw Jembar (BScN, MSc)*; Medina Abdella BSc; Mekidis chokolle, BSc; Miftier Ayallew, BSc

Background: There are around 140 types of Harmful traditional practices affecting mothers and children in almost all ethnic groups in Ethiopia. Female genital mutilation, uvular cutting, milk teeth extraction, eye brow incision and bloodletting are widely practiced among under five children with no or less attention to hygiene. Deep rooted beliefs, customs and attitudes and lack of knowledge of the effect of HTPs contribute to the problem to continue affecting.

Objectives: The aim of this study was to assess magnitude of harmful traditional practices and their reasons among children less than five years of age in Gondar Town, Northwest Ethiopia.

Methods: Community based cross-sectional study was conducted on 382 participants selected by using multistage sampling from August 20 to 28, 2014. The data were collected by using interviewer administered questionnaire. Descriptive statistics was used to analyze the data.

Results: At least one type of harmful traditional practice was performed on half (49.2%) of under five children. Uvula cutting (32.7%) was the major harmful traditional practice performed followed by milk teeth extraction 40(10.7%), eyebrow incision 9(2.4%). There was no report for female genital mutilation. The major reasons to perform uvula cutting was to prevent swelling, pus and rapture of the uvula 121(31.7%). The reasons to practice milk teeth extraction were to prevent diarrhea and vomiting 40(10.5%), and root of teeth grows worm 32(8.4%).

Conclusion Recommendation: Harmful traditional practice was low in Gondar Town. Uvula cutting was the major harmful traditional practice performed followed by milk teeth extraction and eyebrow incision. The major reasons to perform uvula cutting was to prevent swelling, pus and rapture of the uvula. The reasons to practice milk teeth extraction were to prevent diarrhea, vomiting, and root of teeth grows worm.

The most common harmful traditional practice performed on children in this study was uvula cutting. Educating the community and the traditional practitioners of HTPs about the danger of such practices will help to mitigate the problem.
Determinants of Neonatal Mortality in Ethiopia: A case Control study design, 2013. Desalegn Tesfaw Hibret, Tadesse Awoke Ayale, Zelalem Birhanu Mengesha. 1Department of Mid Wife, Hossana College of Health sciences, Hossana, Ethiopia 2Department of Epidemiology and Biostatistics, Institute of Public Health, University of Gondar, Gondar, Ethiopia 3Department of Reproductive Health, Institute of Public Health, University of Gondar, Gondar, Ethiopia.

Introduction: Neonatal mortality is an obstacle to the continued step down of under-five mortality and the attainment of the Millennium Development Goal four. In Ethiopia, the neonatal mortality rate is decreased from 49 in 2000 to 39 deaths per 1,000 live births in 2005, remained stable at 37 deaths per 1,000 live births in 2011 accounting for about 42% of under-five mortality. The aim of the study was to identify determinants of neonatal mortality in Ethiopia.

Methods: Unmatched case-control study design was used to identify determinants of neonatal mortality in Ethiopia from February to June 2013 using the 2011 EDHS data. Cases were all died neonates and controls were all survived live births born within the last five years prior to 2011 EDHS. The total sample size was 11,195 with 2239 cases and 8956 controls.

Logistic regression was used to identify determinants of neonatal mortality. Odds ratios with 95% CI and p-value was computed to measure the associations between the outcome variable and the independent variables. A p-value of less than 0.05 was considered as a significant result.

Result: A total of 2239(20%) cases and 8956(80%) controls were included in this study. Mothers with no education (AOR=1.89, CI: 1.32-2.72), short birth interval (AOR=2.85, CI: 2.28-3.56), age of mother at birth (AOR=0.18, CI: 0.04-0.86), multiple birth (AOR=5.89, CI: 4.23-8.20), unemployed mothers (AOR=1.39, CI: 1.07-1.67), unemployed fathers (AOR=5.50, CI: 3.20-9.44) and place of residence (AOR=1.63, CI: 1.42-1.87) were found to be determinants of neonatal mortality.

Conclusion: The major determinants of neonatal mortality were maternal education, birth interval, multiple birth, and age at birth, maternal and paternal employment and place of residence. Emphasis needs to be given on women’s education, access to family planning, health education on consequences of early marriage and child bearing, and creating job opportunities to improve neonatal survival.
Newborn Skin Care in West Arsi, Oromia Region, Ethiopia. Yared Amare, Ph.D, Consultancy for Social Development, Addis Ababa; Zelee Hill, Ph.D, Institute of Child Health, University College London.

**Background:** 2.9 million newborns die each year which account for 44% of deaths in children under 5 years of age. Infections are associated with 36% of neonatal deaths and can enter through the skin. Hospital trials in Asia have shown that the application of emollients (oils or creams) such as sunflower oil and coconut oil on the skin of pre-term babies significantly reduces infection and mortality rates among them, possibly by improving skin integrity. The need for community trials in Asia and Africa on the impact of such emollients on full term infants has been identified. Adequate information on community practices and perspectives related to existing uses of emollients is needed to design such trials and to develop effective strategies to promote adoption of a beneficial emollient.

**Objectives:** This study investigates community practices and perspectives related to emollient use and related aspects of skin care in West Arsi, Oromia Region, Ethiopia.

**Methods:** The study used qualitative methods to collect and analyze data. Two communities which vary in their access to health facilities and urban centers and Health Extension Worker (HEW) performance were purposively selected from both Kofele and Shala districts in West Arsi Zone. To collect data for the study, 16 narrative interviews; in-depth interviews with 12 mothers, 9 grandmothers, 8 fathers, 8 grandmother birth attendants, 2 traditional birth attendants, 4 HEWs and 4 nurses; focus group discussions with 4 groups of mothers and 4 groups of grandmothers; and 8 observations of newborn skin care practices were conducted. Thematic analysis using the Nvivo program was utilized to analyze the data.

**Results:** The study found universal application of emollients on newborn skin starting from 1 to 4 weeks after birth. The emollients used were predominantly butter, as well as Vaseline, hair lotion and a local herbal mix known as hato. Emollients were applied after a bath by massaging them into the skin, usually once but also up to three times a day. The massage grew stronger with age. Families applied emollients in order to loosen up the body, soften the skin, promote growth, straighten and shape the limbs and to protect against cold. Bathing with warm or cold water started mostly 6 hours or later after birth but sometimes earlier to remove birth related fluids and the vernix. Bathing in the neonatal period continued 2 to 3 times a day to remove urine and sweat and prevent skin sores and promote growth. Newborns were also massaged during or after a bath in the period preceding the initiation of emollient application.

**Conclusion:** Universal application of emollients on newborn skin indicates that there is a strong potential for promoting adoption of a beneficial emollient, eg. sunflower oil. Messages promoting such an emollient should encourage early, frequent, gentle and hygienic application, incorporate local conceptions regarding why and how emollients work, and integrate messages on optimal bathing, massage and thermal practices.
Determinants of Childhood Diarrhea among under-five Children in Benishangul Gumuz Regional State, North West Ethiopia. Thomas Sinmegn Mihrete, Getahun Asres Alemie, Alemayehu Shimeka Teferra.

Background: Diarrhea is second only to pneumonia as the cause of child mortality worldwide. Developing countries particularly in Sub Saharan Africa including Ethiopia have a high burden of this disease. Studies showed that different factors were associated with the occurrence of childhood diarrhea. Therefore, this study was aimed to identify the socio-economic and environmental determinants of diarrhea in under-five children in Benishangul Gumuz Regional State, western Ethiopia.

Method: Demographic and Health Survey (DHS) data of 2011 was used for this study. The data was extracted from the National DHS data using data extraction tools. A total of 925 under five children were selected. The logistic regression model was employed to examine the determinants of childhood diarrhoea. Both bivariate and multivariate data analysis was performed using SPSS version 16.0.

Result: The results of this study indicated that low level of maternal education [AOR=1.81, 95% CI (1.12,2.76)], absence of toilet facility [AOR=3.5, 95% CI (2.4, 5.2)], improper child stool disposal methods [AOR=2.05, 95% CI (1.36, 3.10)], having more than two under five children [AOR=1.73, 95% CI (1.03, 2.93)], higher birth order [AOR=6.1, 95% CI (3.1,12.2)] and the age of children [AOR=1.9, 95% CI (1.2, 3.6)] were found to be the risk factors for childhood diarrhea after adjusting for other variables. When toilet facility was stratified by maternal education, it showed that children of mothers who had no education were the most vulnerable in the absence of toilet facilities [OR=9.16, 95% CI (5.79, 14.48)].

Conclusions: Under poor environmental conditions, mothers with primary education and above protected their children against diarrhea better than mothers with no education. Thus, implementing effective educational programs that emphasize environmental health and sanitation practices and encouraging female school enrolment would reduce childhood diarrheal morbidity in the region.

Keywords: childhood diarrhea, Determinants, Benishangul Gumuz
Pneumococcal Conjugated Vaccine 10 (PCV 10) Uptake Assessment in Ethiopia in 2012. Tekley Kidane, MD, MPH, Clinton Health Access Initiative (CHAI); Yann LeTallec, PHd; Marta Prescott, MPH, PHD; Neghiat Tesfaye, MD, MPH; Sintayehu Abebe, BS; Tahir Mohammad, MPH; Alice Kang’ethe, PhD.

Background: Ethiopia introduced Pneumococcal Conjugated Vaccine (PCV) with the support of the Global Alliance for Vaccine and Immunization (GAVI) in 2011. However, there was no data on the backlog (children aged more than six weeks at the time of PCV launch) demand for newly introduced vaccine in the year of introduction.

Objective: To determine the total and backlog demand for PCV during introduction year and to assess the impact of PCV introduction on uptake of other vaccines and their compliance with recommended age of administration.

Methods: Health facility based immunization data record review from 102 health facilities that were selected based on stratified multistage sampling method. Health facilities were randomly sampled from within 30 woredas, which were in turn sampled from five regions that represent urban, agrarian and pastoral areas of Ethiopia. Records of Penta1, Penta2, Penta3, PCV1, PCV2, PCV3, and measles doses in children who have visited health facilities following the launch of PCV vaccine were collected for the 12 months following PCV introduction. The uptake from the 102 facilities was weighted to estimate national uptake and coverage of PCV.

Result: The weighted National total PCV1 and Penta1 uptake was 2.9 million and 2.1 million doses respectively, which gives PCV1 to Penta1 relative uptake of 1.37 due to the backlog uptake of PCV1. Area of residence, facility type and time of starting with Penta1 were factors identified to influence PCV uptake. In addition, PCV introduction has also increased the uptake of other vaccines during the first month of introduction.

Conclusion: For future vaccine introduction, countries and GAVI should account for new vaccine uptake beyond the annual birth cohort of a country during the vaccine forecasting as well as additional vaccine allocation for routine vaccines in the year of introduction.
Prevalence of Chronic Malnutrition (Stunting) and Determinant Factors among Children aged 0-23 Months in Western Ethiopia: a Cross-sectional Study. Tedeke Wolde, MSc; Alemu Sofia, MPH/RH; and Emiru Adero, GMPP. Department of Public Health, College of Medical and Health Sciences, Wollega University, Nekemte, Ethiopia. Department of Public Health, College of Medical and Health Sciences, Wollega University, Nekemte, Ethiopia.

Introduction: Poor growth especially stunting is associated with impaired development which is apparent in the relationship between growth status and school performance and intellectual achievement. Thus, previous studies in Western Ethiopia were not addressed factors associated with stunting.

Objective: To assess prevalence and associated factors of stunting among less than 24 months children in East Wollega Zone, West Ethiopia.

Methods: A community based cross-sectional study design using two-stage cluster sampling survey was conducted on 593 households from April to May, 2014 in three randomly selected districts of East Wollega Zone to assess factors associated with stunting. A structured and pre-tested questionnaire was used to obtain information on demographic and socio economics characteristics, feeding practices, dietary diversity and anthropometric measurement of children aged less than two years. Bivariate and multivariable logistic regression models were fit to identify significant predictors of stunting at P<0.05.

Results: Prevalence of stunting and severe stunting were 15.7% (95% CI: 12.7-18.7) and 0.3% (95%CI: 0.1-0.5) for children aged <24 months. Stunting was associated with illiterate mothers (AOR = 3.84; 95% CI 1.49-9.91) and nonexclusive breast feeding (AOR = 2.12; 95% CI 1.19-7.79). Children who consumed vegetables and fruits (AOR =0.51; 95%CI 0.28-0.95) and boiling drinking water (AOR = 0.61, 95% CI: 0.39 - 0.97) were significantly reduced odds of being stunted. High dietary diversity scores (DDS) was associated with reduced the risk of being stunted compared to low dietary diversity scores (COR = 0.51; 95%CI: 0.26-0.99). However, the other important determinant factors (age, sex, wealth index, low birth weight, birth order and family size) were not associated with stunting in the study area (P<0.05).

Conclusion and Recommendation: The prevalence rate of stunting in the study area was found low. Stunting was significantly associated with the illiterate mothers and non-exclusive breastfeeding practice. Thus, an organized effort should be made at all levels to improve maternal education and exclusive breastfeeding practice of the poor rural population particularly mothers to curb the problems of chronic under nutrition (stunting) in children, especially in the first two years of life.

Keywords: Determinant factors; Stunting; Under 2 Children; Western Ethiopia.
Analyses of the Prevalence, Trends, and Key Proximate Determinants of Maternal Anemia During Pregnancy in Ethiopia: *An in-depth analyses of the Ethiopian Demographic and Health Survey* (EDHS). Taddese Alemu (MPH/RH, PhD Candidate) and Melaku Umeta (PhD, Biochemist and Nutritionist)

**Background:** Anemia is a global public health problem. In Ethiopia, a nationally representative evidence is lacking on the pattern and its determinants during pregnancy.

**Objective:** To analyze the prevalence, trends, and key proximate determinants of maternal anemia during pregnancy in Ethiopia from the 2005 & 2011 EDHS data set.

**Methods:** This is an in-depth analysis of EDHS data set after assuring data quality. Data for the surveys was collected from a nationally representative samples from all regions in the country. Considering maternal anemia as an outcome variable, predicting variables from socio-demographic, household and reproductive characteristics were identified for analyses. Chi-square test and multivariate logistic regression model were used to determine independent predictors of maternal anemia during pregnancy.

**Results:** The analyses included a total of 21,923 women in the reproductive age bracket. The prevalence of anemia during pregnancy declined from 30.6% to 22% between 2005 to 2011 (p >0.05). After controlling for the confounders, it was learned that maternal age, religion, marital status, access to safe water and improved sanitation, pregnancy trimester, awareness on reproductive system, previous history of abortion, number of living children in the house hold, history of recent sexual activity, ever use and pattern of use of modern contraceptives, body mass index and height of the mother were identified as independent determinants of maternal anemia during pregnancy. Other variables, though showed variation, they were not shown up in the final logistic regression analyses.

**Conclusion and Recommendation:** Even if the prevalence of anemia during pregnancy declined across time in the country, it is still among the major public health problem requiring prompt attention. A number of socio-demographic, household and reproductive characteristics are predicting the occurrence.

**Keywords:** Anemia, pregnancy, Ethiopia, Pregnancy outcome, Demographic and health survey
Nutrition Core Competencies: A Foundation for Pre-service and In-service Nutrition Training.  
Enderis Mekonnen, MSc, Pre-service Education Advisor, ENGINE, Jhpiego-Ethiopia; Mesfin Goji, Jhpiego-Ethiopia; Dr. Tadele Bogale, Jhpiego-Ethiopia; Dr. Belaynesh Yifru, Save the Children, Ethiopia.

Objectives: The Ethiopian Health and Nutrition Research Institute (EHNRI) in 2009 identified gaps in nutrition curriculum and training capacities of higher learning institutions in Ethiopia. To address these gaps and inform the National Nutrition Program (NNP), Empowering New Generations to Improve Nutrition and Economic opportunities (ENGINE) project with funding from USAID conducted a core competency survey to identify gaps in nutrition education of undergraduate nutritionists, health workers and mid-level agriculture professionals and define nutrition core competencies for them.

Methods: A cross-sectional survey was conducted in July and August 2012. Data was collected using in-depth interview with key informants from various relevant sectors including 12 pre-service institutions, and desk review of published and un-published documents. The data was transcribed, coded and summarized manually.

Results: The assessment indicated that nutrition pre-service education was unable to equip nutrition practitioners with the desired competencies to provide good quality nutrition services. A key finding was that nutrition education was not task-oriented and those involved in nutrition services were lacking the required knowledge, skills and behavioral competencies. Absence of nutrition skills learning facilities such as skills development laboratory, equipment and supplies, and adequate number of classroom and practical nutrition instructors were documented as gaps of the training facilities. Nutrition core competencies were not identified for undergraduate nutritionists, healthcare practitioners of different levels and for mid-level agriculture agents. Nutrition education was not tailored to specific disciplines and the time allotted for nutrition courses was inadequate.

Conclusion: Competency-based education (CBE) works based on the premise that people need to be taught and assessed on the knowledge, skills and attitudes required for effective performance of their work. Competency-based nutrition training should be introduced in pre-service education institutions and the health and agriculture curricula should be strengthened by integrating the essential, but missing nutrition competencies. A discipline-specific and task-oriented nutrition education focusing on skills learning with adequate contact time was recommended.
Treatment Outcomes and Associated Risk Factors of Severely Malnourished Under Five Children Admitted to Therapeutic Feeding Centers of Mekelle City, Northern Ethiopia. Melaku Gebremichael, MSc, Health Development Planning Monitoring and Evaluation supportive process, Benishangul-Gumuz Regional Health Bureau, Asosa; Asework Mulugeta, PhD., Department of Public Health, Mekelle University, Mekelle; Macbe Tsadik, MSc., Department of Public Health, Mekelle University, Mekelle.

Background: Despite presence of clinical management protocols for treating severe acute malnutrition, its case fatality rate remains high in health facilities from developing countries. And this study aimed to assess treatment outcomes and associated risk factors for death children aged 6-59 months with complicated acute malnutrition.

Methods: A cohort of 469 children aged 6-59 months with complicated severe acute malnutrition admitted to nutritional rehabilitation units of Mekelle city were followed retrospectively. Data on nutritional status, socio-demographic factors, admission medical conditions and management characteristics were collected. Median test, chi-square test and Cox’s proportional hazard regression were used for statistical analysis. Statistical significance was declared if p-value was less than 0.05.

Results: Overall case fatality rate was 12.8%. The median length of stay and median weight gain were 17 days and 12.1 g/kg/day, respectively. Two third of the deaths occurred during the first week of admission. Intravenous infusion (HR: 2.52, 95% CI: 1.25-5.07), diarrhea (HR: 2.45, 95% CI: 1.23-4.89), intravenous antibiotics (HR: 5.87, 95% CI: 1.73-19.87) and blood transfusion (HR: 3.05, 95% CI 1.51-6.17) were associated with time to death.

Conclusion: Unacceptably high CFR was observed at the therapeutic feeding units of Mekelle city. Diarrhea, intravenous antibiotic, blood transfusion and intravenous infusion were the risk factors for death of severely malnourished under five children. Appropriate clinical management of severe acute malnutrition in the first week of inpatient stay with frequent monitoring for signs associated with clinical deterioration of children hospitalized with complicated SAM is most critical to the survival of the children.

Keywords: severe acute malnutrition, hospitalized death, treatment outcome, nutritional rehabilitation units, Mekelle
Exploring Spatial Variations and Factors Associated with Childhood Stunting in Ethiopia: Spatial and Multilevel Analysis. Mulukan Azggo, MPH, Babir Dar University; Demowq Hail, MS; Tegne Molla, MSc.

Background: Stunting reflects failure to receive adequate nutrition over a long period of time and hence it is the best measure of child health inequalities as it captures multiple dimensions of children’s health, development and the environment where they live.

Objective: to investigate spatial variations and factors affecting childhood stunting in Ethiopia.

Methods: this study used data set obtained from the Ethiopian Demographic and Health Survey which was conducted in 2011 using cross sectional survey. A total of 9893 children aged 0-59 months included in this survey analyzed in this study. Getis and Orids spatial statistical tool was used to identify high and low hotspots of stunting. A multilevel multivariate logistic regression was used to identify factors affecting stunting at individual-level (first level) and community-level factors (second level). Stata version 11 and Arc GIS 10.0 was used to do statistical analysis.

Result: Statistical significant high hotspots of stunting were found in northwestern parts of the country whereas low hotspots of stunting were found in central, East, West parts of the country. In the full model of multilevel regression analysis, community level factors accounted for 37% of childhood stunting variation across the communities. Being male, age above 11 months, short birth interval, all forms of anemia, no formal education of mothers and parents, male household head and households with poorest wealth status were the factors that increased the odds of stunting at individual level whereas lack of sanitation availability and northwestern parts of the region were the factors associated with stunting at the community-level factors

Conclusion: this study revealed that childhood stunting was not random in Ethiopia with high hotspots at northwestern parts of the country. Both individual- and community-level factors were significant determinants of childhood stunting. The identified regions with high hotspot of childhood stunting are the areas where nutritional interventions should be strengthened.

Keywords: diarrhea, children, health care utilization
Assessments of Cancer Rehabilitation Service Utilization among Cancer Patients at Cancer Center of Black Lion Hospital Addis Ababa, Ethiopia. Zuriyash Mengistu¹, Tesbager Worka² ¹ Department of Nursing; Addis Ababa University; Ethiopia ²Department of Nursing; Hadassah University.

Background: Cancer and its treatment may result in physical and mental impairment which requires rehabilitation for functional recovery.

Objective: Assess the cancer rehabilitation service utilization among cancer patients at cancer center of Black Lion Hospital.

Methods: Across sectional quantitative study was done. After clustering to cancer type and getting consent, a total of 423 cancer patients were selected using simple random sampling. Data collection was done using a structured questioner. The raw data was entered; cleaned and analyzed using SPSS program package to compute descriptive and inferential statistics. Ethical clearance was taken from Health Science College Institutional Review Board. Patient information was kept confidential.

Result: Out of the total respondents, 388 (26%) were involved at least once in rehabilitation. The majority of patients had breast cancer (25%) followed by colorectal cancer (20.6%). The rehabilitation service utilized by the patients were 99 (49.5%) nutritional support followed by 78 (41.4%) psychosocial support. A patient who has lung cancer (Adjusted Odd Ratio =7.29, 95%CI:1.34,39.58) were more likely to get rehabilitation service utilization.

Conclusion: Rehabilitation services for cancer patients were very low. Therefore, it was recommended to meet cancer patients' rehabilitation needs.

Keywords: Cancer, cancer rehabilitation service, Cancer rehabilitation need
Mapping and Modelling the Geographical Distribution and Environmental Limits of Podoconiosis in Ethiopia. Kebede Deribe, MPH, Brighton and Sussex Medical School, Falmer, Brighton, United Kingdom; and School of Public Health, Addis Ababa University, Addis Ababa Ethiopia; Jorge Cano, PhD, Faculty of Infectious and Tropical Diseases, London School of Hygiene & Tropical Medicine, London, United Kingdom; Melanie J. Newport, PhD, Brighton and Sussex Medical School, Falmer, Brighton, United Kingdom; Nick Golding, PhD, Spatial Ecology and Epidemiology Group, Department of Zoology, University of Oxford, Oxford, United Kingdom; Rachel L. Pullan, PhD, Faculty of Infectious and Tropical Diseases, London School of Hygiene & Tropical Medicine, London, United Kingdom; Heven Sime, MSc, Ethiopian Public Health Institute, Addis Ababa, Ethiopia, Abeba Gebretsadik, MSc, Ethiopian Public Health Institute, Addis Ababa, Ethiopia, Ashenafi Asfaw, MSc, Ethiopian Public Health Institute, Addis Ababa, Ethiopia, Amha Kebede, PhD, Ethiopian Public Health Institute, Addis Ababa, Ethiopia, Asrat Haile, PhD, School of Medicine, Addis Ababa University, Addis Ababa, Ethiopia; Maria P. Rebollo, Centre for Neglected Tropical Diseases, Liverpool School of Tropical Medicine, Liverpool, United Kingdom; Omer Shaﬁ, Federal Ministry of Health, Addis Ababa, Ethiopia; Moses J. Bockarie, PhD, Centre for Neglected Tropical Diseases, Liverpool School of Tropical Medicine, Liverpool, United Kingdom; Abraham Asfaw, PhD, Armauer Hansen Research Institute/ALERT, Addis Ababa, Ethiopia; Simon I. Hay, PhD, Spatial Ecology and Epidemiology Group, Department of Zoology, University of Oxford, Oxford, United Kingdom and Fogarty International Center, National Institutes of Health, Bethesda, United States; Richard Reithinger, PhD, RTI International, Washington, D. C; Fikire Esubeliasie, PhD, School of Public Health, Addis Ababa University, Addis Ababa Ethiopia; Gail Davey, MD, Brighton and Sussex Medical School, Falmer, Brighton, United Kingdom; Simon J. Brooker, PhD, Faculty of Infectious and Tropical Diseases, London School of Hygiene & Tropical Medicine, London, United Kingdom.

Background: Ethiopia is assumed to have the highest burden of podoconiosis globally, yet the geographical distribution, spatial pattern and environmental limits are to be fully investigated. Here we quantify the geographical distribution, environmental limits and population at risk of podoconiosis, using data from a 2013 nationwide survey.

Methods: Our analyses are based on data arising from the integrated mapping of podoconiosis and lymphatic filariasis (LF) conducted in 2013, supplemented by data from an earlier mapping of LF in western Ethiopia in 2008-2010. The integrated mapping used woreda (district) health offices' reports of podoconiosis and LF to guide selection of survey sites. A suite of environmental and climatic data and boosted regression tree (BRT) modelling was used to predict the spatial occurrence of podoconiosis.

Results: Data were available for 141,238 individuals from 1,442 communities in 775 districts from all nine regional states and two city administrations of Ethiopia. In 41.9% of surveyed districts no cases of podoconiosis were identified, with Afar, Dire Dawa, Somali and Gambella regional states lacking the disease. The disease was most common, with lymphoedema positivity rate exceeding 5%, in the central highlands of Ethiopia, in Amhara, Oromia and Southern Nations, Nationalities and Peoples regional states. BRT modelling indicated that the probability of podoconiosis presence increased with increasing altitude, rainfall and silt fraction of soil and decreased with more alkali soils (pH > 7), temperature and population density. Based on the BRT model, we estimate that in 2010, 37.9 (95% confidence interval [CI]: 22.6-56.0) million people (i.e. 47.8%; 95% CI: 28.4-70.1%) of Ethiopia's national population lived in areas environmentally suitable for the occurrence of podoconiosis.

Conclusion: Podoconiosis is more widespread in Ethiopia than previously estimated, but occurs in distinct geographical regions that are tied to key environmental factors. The resultant maps can be used to guide programme planning and implementation, and provide a current benchmark against which future podoconiosis control programmes can be evaluated.
Epidemiology and Individual, Household and Geographical Risk Factors of Podoconiosis in Ethiopia: Results from the First Nationwide Mapping. Kebede Deribe, MPH, Brighton and Sussex Medical School, Falmer, Brighton, United Kingdom; and School of Public Health, Addis Ababa University, Addis Ababa Ethiopia; Simon J. Brooker, PhD, Faculty of Infections and Tropical Diseases, London School of Hygiene & Tropical Medicine, London, United Kingdom; Rachel L. Pullan, PhD, Faculty of Infections and Tropical Diseases, London School of Hygiene & Tropical Medicine, London, United Kingdom; Heven Sime, MSc, Ethiopian Public Health Institute, Addis Ababa, Ethiopia; Abeba Gebresadik, MSc, Ethiopian Public Health Institute, Addis Ababa, Ethiopia; Azmari Assefa, MSc, Ethiopian Public Health Institute, Addis Ababa, Ethiopia; Amba Kebede, PhD, Ethiopian Public Health Institute, Addis Ababa, Ethiopia; Asrat Haile, PhD, School of Medicine, Addis Ababa University, Addis Ababa, Ethiopia; Maria P. Rebollo, Centre for Neglected Tropical Diseases, Liverpool School of Tropical Medicine, Liverpool, United Kingdom; Owmer Shafi, Federal Ministry of Health, Addis Ababa, Ethiopia; Moses J. Bockarie, PhD, Centre for Neglected Tropical Diseases, Liverpool School of Tropical Medicine, Liverpool, United Kingdom; Abraham Assefa, PhD, Armauer Hansen Research Institute/ALERT, Addis Ababa, Ethiopia; Richard Reithinger, PhD, RTI International, Washington, D. C.; Jorgo Cano, PhD, Faculty of Infections and Tropical Diseases, London School of Hygiene & Tropical Medicine, London, United Kingdom; Fikre Engazasse, PhD, School of Public Health, Addis Ababa University, Addis Ababa Ethiopia; Melanie J. Newport, PhD, Brighton and Sussex Medical School, Falmer, Brighton, United Kingdom; Gail Davey, MD, Brighton and Sussex Medical School, Falmer, Brighton, United Kingdom.

Background: Although podoconiosis is one of the major causes of tropical lymphoedema and is endemic in Ethiopia its epidemiology and risk factors are poorly understood.

Methods: Individual level data for 129,959 individuals from 1,315 communities in 659 woreda (districts) were collected for nationwide integrated survey of lymphatic filariasis and podoconiosis. Blood samples were tested for circulating Wuchereria bancrofti antigen using immunochromatographic card tests. A clinical algorithm was used to reach a diagnosis of podoconiosis by excluding other potential causes of lymphoedema of the lower limb. Bayesian multilevel models were used to identify individual and environmental risk factors.

Results: Overall, 8,110 of 129,959 (6.2%, 95% confidence interval [CI] 6.1 - 6.4%) surveyed individuals were identified with lymphoedema of the lower limb, of whom 5,253 (4.0%, 95% CI 3.9 - 4.1%) were confirmed to be podoconiosis cases. In multivariable analysis, being female, older, unmarried, washing the feet less frequently than daily, and being semiskilled or unemployed were significantly associated with increased risk of podoconiosis. Attending formal education and living in a house with a covered floor were associated with decreased risk of podoconiosis.

Conclusion: Podoconiosis exhibits marked geographical variation across Ethiopia, with variation in risk associated with variation in rainfall, enhanced vegetation index and altitude.
Feasibility and Acceptability of the Single Visit Approach for the Prevention of Cervical Cancer in the Ethiopian Context. Netsanet Shiferaw, BSc, MPH/E, Addis Ababa; Graciela Salvador-Davila (MD, MSc, MPH); Patricia David (BA, MA, MSc, PHD); Konjit Kassahun (BSc, MPH); Atsede Tadele(BSc, MPH); Tefera Tesfamichael (BSc, MBA); Mengistu Asnake (MD, MPH).

Background: Cervical cancer is the second common women cancer in Ethiopia; a preventable disease if effective screening and pre-cancerous lesion treatment is available. But access to cervical cancer prevention (CCP) service is limited in Ethiopia. Since 2009, Pathfinder has started single visit approach (SVA) for CCP using visual inspection of the cervix with acetic acid wash (VIA) and same-day treatment of pre-cancerous lesion with cryotherapy. It is a collaborative work with Federal Ministry of Health; funding from centers for disease control and prevention. Pathfinder has built national capacity, trained providers on cervical cancer screening and pre-cancerous lesions treatment, and established services in 14 hospitals of five major regions.

Methodology: Descriptive cross-sectional study was employed to assess the feasibility and acceptability of the SVA for CCP in Ethiopia as it is the new approach for the country. Women age 30-45 at SVA service unit and key informants were interviewed from August to September 2012. Analysis was done using SPSS and thematic approach.

Results: Among 419 women counseled for SVA, 95.2% accepted the VIA test and screened. All VIA-positive women (n=41) also gave consent and treated. All 399 women tested with VIA were able to receive the type of service they wanted and were highly satisfied. They also agreed to continue to use the SVA service though 4% were not willing to recommend the service to others due to fear of discrimination. Similarly, most providers were willing to continue providing this SVA service.

Stakeholders at all levels acknowledged VIA as viable screening method in Ethiopia and midlevel professionals as an appropriate SVA service providers. Majority, however, agreed on shortage of trained providers. Attention to CCP from policy-makers was increasing and ownership by government was observed which however could be strengthened as stated by some. All interviewee were willing to work on sustaining the SVA service.

Conclusion: The results showed that the SVA service for CCP in Ethiopia is highly acceptable and feasible to be expanded throughout the country. The quality of the services, providers’ commitment and service ownership at all level has contributed a lot for high service acceptance and are indicators for the feasibility.
Risk Factors of Osteoporosis among Adults in Ethiopia, the Case of Tigrai region: A Case Control Study. Alemayehu Begno Kahiye, Fikre E. Gashe, Zenebe G. Debesay, Abebe Tegne and Tsigabu-Bezahib

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Osteoporosis is one of the most common public health problems affecting adults and elders in developing countries. This study aims to examine the potential risk factors of osteoporosis among adults in Tigrai, Northern Ethiopia. This is a case-control study. Cases and controls were assigned by two radiologists after radiographic examination of the wrist. An interviewer administered questionnaire was used and information on demographic characteristics and potential risk factors were collected. Data was processed and analyzed using statistical package for social sciences (SPSS) version 19. Binary logistic regression was used to control confounders. A total of 130 osteoporotic cases and 266 controls participated in the study. The mean ± standard deviation (SD) age of cases and controls were 60.9 ± 10.1 and 46.9 ± 8.7 years, respectively. The multivariate analysis adjusted for age and sex showed that rural residents were 1.93 times more likely to develop osteoporosis than the urban inhabitants with an adjusted odds ratio (AOR) 1.93 (95% CI, 1.11, 3.36). The strongest association was also found when the work of the respondent involves decreased physical activity with AOR 3.53 (95% CI, 1.98 and 6.30). Furthermore, milk consumption greater than four times a week and smoking showed a significant association with the AOR 0.33 (95% CI, 0.19 and 0.58), and AOR 0.17 (95% CI, 0.05 and 0.58), respectively. Residing in the rural setting and smoking were positively associated with osteoporosis. In contrast, milk intake greater than four times a week, and when work involves vigorous exercise, appeared to be associated with a reduced risk of osteoporosis. Therefore, the findings from the study suggest the need for changes of lifestyle that includes encouraging adults to stop smoking, engage in vigorous physical activities and adequate dietary intake including milk. Strategies to identify and manage osteoporosis in the primary health care setting need to be established.

Keywords: Case control, osteoporosis, risk factors, bone mineral density, DR-F digital radiography, Ethiopia.
Self Care Practice and its Associated Factors among Diabetic Patients in Addis Ababa Public Hospitals, Cross Sectional Study. Melat Mamo, Meaza Demissie  
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Addis Continental Institute of Public Health

Background: Diabetes is one of the most prevalent non-communicable diseases globally, presenting a significant public health burden on the basis of its increasing incidence, morbidity, mortality, and economic costs. The prevalence of the disease is gradually increasing in the developing countries; Ethiopia is also facing a growing morbidity and mortality of diabetes. Self care of diabetes is essential for control of the disease and improvement of quality of patients' life. Thus, this study has assessed self care practice and its associated factors among diabetes mellitus patients in Addis Ababa public hospitals.

Methods: In this cross-sectional study, 660 diabetic patients were selected through systematic random sampling method; data was collected from November to December 2011. Patients were interviewed using a structured questionnaire. Based on the patients answer to the practice questions patients were categorized as those with good and poor levels of practice. Binary and multivariate logistic regressions were used to exam the association between self-care practice and different factors.

Results: The result of the study showed that only 60.3 % (95% CI: 56%, 64%) of participants had good self care practice. There was significant association between mode of treatment AOR= 1.94(95%CI: 1.31, 2.87), social support system AOR=1.59(95% CI: 1.10, 2.31), being member of diabetic association AOR= 2.39(95% CI: 1.19, 4.81), diabetes education from health professionals AOR= 2.79(95% CI: 1.95, 3.99) diabetes knowledge AOR= 3.13(1.54, 6.39) and good self care practice.

Conclusion: Despite the important role of self-care practice in management of diabetes and preventing its serious complications, a substantial number of the patients had poor self-care practice especially lack of regular exercise and self monitoring of blood glucose, which have critical roles in controlling diabetes.

Keywords: Self-care practice, diabetes mellitus
Bacterial Profile and Drug Susceptibility of Urinary Tract Infection in Pregnant Women Attending Antenatal Care at Mekelle Hospital, Mekelle, Northern Ethiopia. Ephrem Tsegay, Medical Microbiology and Immunology Unit, College of Health Sciences, Mekelle University; Daniel Astat, Medical Microbiology and Immunology Unit, College of Health Sciences, Addis Ababa University; Yimtubzenab Woldeamanuel, Medical Microbiology and Immunology Unit, College of Health Sciences, Addis Ababa University; Tsehay Asmelash, Medical Microbiology and Immunology Unit, College of Health Sciences, Mekelle University

Background: Urinary tract infection (UTI) in pregnancy is associated with significant morbidity for both the mother and the baby. However, little is known about UTI in pregnancy in the study area. Hence, proper investigation and prompt treatment are needed to prevent serious life threatening condition and morbidity due to UTI that can occur in pregnant women.

Objective: To identify prevalent bacterial isolates that cause UTI and assessing their antibiotic susceptibility pattern among symptomatic and asymptomatic pregnant women attending antenatal care.

Methods: A cross sectional study was carried out on a total of 168 pregnant from February to April 2014 at Mekelle Hospital. Mid-stream urine samples were collected and inoculated into Cystine Lactose Electrolyte Deficient medium. Colony counts yielding 105/ml of urine or more of pure isolates were regarded as significant bacteriuria for UTI. Standard laboratory procedure methods were used to identify and determine their susceptibility of Pure isolates to antibiotic disks.

Result: The overall prevalence of UTI was 11.9%. Of this bacteriological screening of urine showed that 11.3% and 15.4%, had significant bacteriuria in asymptomatic and symptomatic group respectively. Prevalence of UTI was significantly associated with previous history of UTI and catheterization (p<0.05). Escherichia coli was the most frequently isolated pathogen 6(30%) followed by coagulase negative staphylococcus 5(25%), Staphylococcus aureus 4 (15%), and Klebsiella pneumoniae 4 (15%). Generally Gram-negative isolates showed resistance rate of 100% to ampicillin and their resistance against ciprofloxacin, Norfloxacin, gentamycin, amoxicillin-clavulanic acid, trimethoprim/sulfamethoxazole and chloramphenicol ranged from 25- 50%. However, all Gram negative bacterial isolates revealed least resistance (16.7%) against nitrofurantoin and ceftriaxone. The rates of susceptibility of Gram- positives to ceftriaxone, doxycycline, amoxicillin-clavulnic acid and vancomycin range from 62.5% - 100%. And they showed resistance rate of 75% and 87.5% to penicillin and ampicillin, respectively. Multiple drug resistance was observed in 90 % of the isolates.

Conclusions and Recommendations: Significant bacteriuria has been isolated from both symptomatic and asymptomatic pregnant women that are resistance to commonly prescribed drug. This calls for an early screening of all pregnant women to UTI and those found to be infected need to be treated with an appropriate drug to avoid complications.

Keywords: Bacterial profile, antibiotic resistance, pregnancy, Mekelle
Molecular Characterization of *Mycobacterium tuberculosis* Complex Isolated from Tuberculous Lymphadenitis Patients at Dessie Private Hospitals, Northern Ethiopia.  

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**Background:** Tuberculosis (TB) is an infectious disease that has major global public health problem. Tuberculous lymphadenitis is among the most common presentations of extra pulmonary tuberculous in developing countries. Although the incidence of Tuberculous Lymphadenitis (TBLN) is rising in different regions of Ethiopia, the incriminated mycobacterium species and strains have been rarely characterized. The present research was aimed to characterize *Mycobacterium tuberculosis* Complex (MTC) and assess associated risk factors.

**Methods:** A cross sectional study was conducted from September 2012 up to April 2013 on 90 tuberculous lymphadenitis suspected patients who were visited Dessie Private Hospitals during the study period. Clinical, cytological, Culture, deletion typing and spoligotyping, and interviewer administered questionnaire was used to collect associated risk factors. Data were cleaned, coded and fed into SPSS version 20.0 for analysis in this study.

**Results:** Out of 90 fine needle aspirate samples, 33% (32/90) of them were culture positive. Based on the deletion typing of the 32 isolates using region of difference-9 (RD9) showed that all of the isolates were *Mycobacterium tuberculosis*. Further characterization of the 32 isolates using spoligotyping lead to the identification of 28 different strains. Two of these strains consisted of three isolates each while the remaining 26 strains were orphan that consist a single isolate each. Comparison of the 28 patterns with the patterns in the international spoligotype database, SpolDB4 showed that 17 patterns were new spoligotypes. The occurrence of the disease was not associated with age, sex, marital status, occupation, education, previous contacts with TB patients, consumption of raw milk and Bacille Calmette Guerin vaccination (*p* > 0.05). However, resident area, previous history of treatment with anti-TB drugs and involved lymph nodes were significantly associated with the occurrence of TBLN (*p* < 0.05).

**Conclusion:** this study has shown that 93% of the isolates were orphan which could suggest less frequent transmission of the disease in the study area. Thus, further study on the molecular Epidemiology of the disease should be needed.

**Key Words:** Dessie Private Hospitals, Molecular typing, Tuberculous lymph adenitis
Methicillin Resistant Staphylococcus Aureus and its Associated Factors among HIV Positive Paediatric Patients in Amhara National Regional State, Ethiopia: A cross Sectional Study Design. Yohannes Zenebe1, MSc in Infectious and Tropical Diseases; Martha Tibebe2, Begna Tulu1, Daniel Mekonnen1, Zewdie Mekonnen1 1Bahir Dar University, College of Medicine and Health Sciences, Department of Medical Microbiology, Immunology and Parasitology, Bahir Dar, Ethiopia 2Nagasaki University, Japan.

Background: Increasing evidence suggests that MRSA infections are becoming more prevalent throughout the HIV community. MRSA infections are a challenge to physicians when treating the condition because of the limited choice of therapeutic options available. They are also a challenge to patients for infections are associated with increased cost of care.

Objectives: This study was aimed to determine the prevalence of colonization by Methicillin resistant Staphylococcus aureus species among HIV positive pediatric patients in the Amhara National Regional State, North West Ethiopia.

Methods: Eligible participants were HIV-infected,<15 years of age, receiving medical care at the Paediatric HIV clinics of FelegeHiwot referral Hospital, DessieReferral hospital and DebretaborReferral Hospitals. From each participant specimens for S. aureus culture were collected from the anterior nares, the skin of the back of the wrist and the perineum using sterile broth moistened swabs. Swabs were cultured and read according to standard microbiologic procedures. Methicillin sensitivity was tested using 30 μg cefoxitin (OXOID, ENGLAND) on Muller Hinton agar. Data was analyzed by descriptive and logistic regression model using SPSS version 16.

Results: MRSA colonization was detected in 67 (16.8%) of the 400 participants, as computed from counts of MRSA at any one of the specimens collected from each patient. There were no significant associations between MRSA colonization and the independent variables including the use of antibiotics in the previous 3 months or hospitalization in the past year either. Concomitant resistance of MRSA to clindamycin, chloramphenicol, co-trimoxazole, ceftriaxone, erythromycin and tetracycline was 7.6%, 6%, 5.25%, 20.9%, 23.9% and 73.1% respectively.

Conclusion and Recommendation: High rates of colonization by pathogenic MRSA strains is observed among HIV positive pediatric patients in the Amhara National Regional state. Further studies on the molecular types of the isolated MRSA strains are recommended.

Keywords: MRSA, Pediatrics, HIV, Ethiopia
Prevalence and Antimicrobial Susceptibility Pattern of Methicillin Resistant *Staphylococcus Aureus* Isolated from Clinical Samples at Yekatit 12 Hospital Medical College, Addis Ababa, Ethiopia. Tebelay Dilnessa, MSc 1,2, Adane Bitew, PhD 1

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**Background:** *Staphylococcus aureus* particularly MRSA strains are one of the major causes of community and hospital acquired bacterial infections. They are also becoming increasingly multi-drug resistant and have recently developed resistance to vancomycin, which has been used successfully to treat MRSA for many years. *In-vivo* determination of drug resistance patterns of *S. aureus* is critical for the selection of effective drugs for the treatment of staphylococci infections.

**Objective:** To determine the prevalence of methicillin resistant *S. aureus* strains isolated from different clinical specimens from patients referred for routine culture and sensitivity testing

**Method:** A cross sectional study was conducted among 1360 study participants selected conveniently at Yekatit 12 Hospital Medical College from September 2013 to April 2014. Clinical samples from various anatomical sites of study participants were cultured on blood agar and mannitol salt agar and identified to *S. aureus* by using catalase, coagulase and DNAse tests. *S. aureus* isolates then were screened for MRSA by using 30μg cefoxitin disc and other eleven antimicrobial drugs by disc diffusion procedure. All *S. aureus* isolates examined for beta-lactamase production by employing nitrocefin.

**Results:** Of 1360 clinical specimens analyzed *S. aureus* was recovered from 194 (14.3%). Rate of isolation of *S. aureus* with regards to clinical specimens was the highest in pus 118 (60.8%) and the lowest in sputum 1 (0.5%). Out of 194 *S. aureus* isolates, 34 (17.5%) were found out to be MRSA and the remaining 160 (82.5%) were MSSA. Relatively a higher MRSA was observed in males than females 19 (55.9%) versus 15 (44.1%). Ninety eight (50.5%) *S. aureus* were multi drug resistant and isolates were more resistant to penicillin 187 (96.4%) and least resistant for vancomycin 10 (5.1%) and cephalothin 6 (3.0%). MRSA strains were 100% resistant to penicillin G, erythromycin, trimethoprim-sulfamethoxazole and least resistant to vancomycin 10 (29.4%) and cephalothin 6 (17.6%). Out of 194 *S. aureus* isolates 153 (79.0%) were beta-lactamase producers. Furthermore, of 34 MRSA isolates, 30 (88.2%) and out of 160 MSSA strains 123 (76.8%) produced beta-lactamase.

**Conclusion:** In this study *Staphylococcus aureus* isolates exhibited very high degree of resistance to different antibiotics. The isolates were also multidrug resistant to several combinations of the tested antibiotics. The emergence of vancomycin resistant *S. aureus* highlights the value of prudent prescribing of antibiotics and avoiding their irrational use.

**Keywords:** Prevalence, *Staphylococcus aureus*, MRSA, MSSA
Retrospective Study of Microbiological quality Assessment of Bottled Water tested at Ethiopian Public Health Institute. Tesfaye Legesse (BSC), Firehiwat Abera, MSC, Redwan Musseyin, BSc, Yosef Beyene, MSC, Samson Girma, MSC, Almaz Guifa, PHD* Ethiopian Public Health Institute

Objectives: To determine the bacterial quality of water bottled in Ethiopia.

Background: Bottled water may pose microbial risk in human especially immunocompromised individuals. Microbes may occur in bottled water through the process of bottling or as a result of storage for long periods of time even at refrigerator temperature. Different gastrointestinal infections are occurred thorough contaminated water.

Methodology: The study was conducted at Public Health Microbiology of Ethiopian Public Health Institute on five years retrospective data of 128 bottled water samples which were collected from four regions of Ethiopia and sent to this National Laboratory by Environmental Health officers for routine microbiological analysis from 2008 to 2012. Forty six samples were Addis Ababa origin, 29 Oromia, Eight Tigray and Seven Amhara, The samples were analyzed for heterotrophic plate count, Total coliform, fecal coliform, and E.coli using Pour Plate methods; mold and yeast counts by spreading techniques. The data were taken from test result recording book of the laboratory. The data was entered into SPSS 20 soft ware & analyzed using descriptive statistics.

Result: A total of 128 bottled water samples from various locations in four regions of Ethiopia were examined to determine their microbial quality. 46(36%) of the samples were not in compliance with microbiological standards set by Ethiopia. Physical appearance of one sample was abnormal. Of 128, 46(36%) of the samples had heterotrophic plate count s higher than 100cfu per ml of water up to too many to count (TMC). Molds and yeasts were detected in 14(11%) and 4(3%) of the samples respectively, which could be regarded as unsafe for consumption.

Conclusion: Most of the waters bottled in Ethiopia are of good microbial quality but some are not. So they need improvement. This microbial contamination may be due to their resistance to different treatment plants or contamination occurred during process. Safety of bottled water must be ensured by the manufacturer itself or by responsible government or non government bodies.
Demand for Modern Family Planning Among Married Women Living with HIV in Western Ethiopia.  Tesfaye Regassa Feyissa, AlemuSofa Melka 1College of Medical and Health sciences, Wollega University, Nekemte, Oromia, Ethiopia.

Introduction: People living with HIV (PLHIV) have diverse needs which are not well understood and are not equally distributed worldwide. Unmet need for family planning (FP) services has often been greatest in countries with high HIV prevalence. Efforts to prevent mother-to-child transmission (MTCT) should focus on reducing the fertility levels of HIV-positive women via a reduction of unmet need for FP. Thus, the objective of this study was to assess the demand for modern FP among married women living with HIV in western Ethiopia.

Methods: A facility based cross-sectional study was conducted on 401 married women living with HIV selected from Nekemte referral hospital and health center. Systematic random sampling was used to recruit respondents. Data were collected using a pretested and structured questionnaire. Data were entered and cleaned by Epi-info and exported and analyzed using statistical package for social science (SPSS) software version 20. Bivariate and multivariate analyses were done. Statistical significance was determined through a 95% confidence level.

Results: Met need for modern family planning among married women living with HIV was 61.6% (30.7% for spacing and 30.9% for limiting). Unmet need for modern FP was 15.4% (7.5% for spacing and 7.9% for limiting) whereas the total demand was 77.0% (38.2% for spacing and 38.8% for limiting).

Age [adjusted odds ratio (AOR) (95% confidence interval (CI)) =.397 (.204-.771)] was found protective against unmet need for modern FP. Lack of knowledge of mother to child transmission [AOR (95% CI) = 2.531 (1.689-9.290)] and lack of discussion regarding FP with a partner [AOR (95% CI) = 3.616(1.869-6.996)] were significantly associated with unmet need for modern FP.

Conclusions and recommendations: There is high unmet need for modern FP in HIV-positive married women in western Ethiopia. Health care providers and program managers at a local and international level should work to satisfy the unmet need for modern family planning.

Key words: unmet need, demand for modern family planning, PLHIV, western Ethiopia

Background: Early onset of sexual intercourse associate with increased lifetime prevalence of sexual partners that increase the risk of exposure to sexually transmitted infections and unintended pregnancy. Alcohol consumption, cigarette smoking, or use of illicit drugs by youths associate with increased risks of sexual intercourse, multiple sexual partners and lower rates of condom use. Therefore, this study aimed to determine the proportion of sexual initiation and associated factors among Addis Ababa university undergraduate students.

Methods: A cross-sectional institution based study design was conducted from November to December 2013 at Addis Ababa university undergraduate students. Multistage sampling technique was used to draw 1012 sample students. Data were collected using self-administered questionnaire method supplemented by focus group discussion. Bivariate and multiple logistic regression statistical analyses were employed to examine the relationship between sexual initiation and selected exposure factors. Statistical significant association was determined using 95% confidence interval of adjusted odd ratio and p value less than 0.05.

Results: Thirty nine percent of the participants had sexual intercourse at the time of the survey, of which 129 (34.7%) were females. The mean age at first sexual intercourse was 17.6(±1.9). Majority 262 (27.4%) of sexually active students had their first sexual intercourse before the age of 18 years old. Being male [AOR=1.4; 95% CI: 1.1, 2.0], alcohol drinking [AOR=2.8; 95% CI: 2.0, 3.9], khat chewing [AOR=2.0; 95% CI: 1.4, 2.9] and watching pornographic movies [AOR=2.9; 95%CI: 1.9, 4.4] significantly associated with sexual initiation.

Conclusion: There is high level of sexual initiation among the study participants. Significant proportion of students had multiple sexual partner and sexual practice without condom with non-regular sexual partners. The university and local health bodies should work together to address the identified risky sexual practices with particular focus on behavior change communication.
Providing Sexual and Reproductive Health (SRH) Information to University Students and Peer Educators through Short Message Service (SMS). Turiku Nigatu, MPH; Marion McNabb (MPH); Camille Collins (MPH); Worknesh Kereta (MPH)

Background: The m4Youth project is a free, menu-based, demand-driven SMS system for Ethiopian university students. Messages in six topic areas --contraceptive methods, STI/HIV, post-abortion care, sexuality FAQs, healthy and abusive relationships, and locations and hours of Youth Friendly Services (YFS) -- are available in English and Afan Oromo. The system uses Rapid SMS open source software and was designed to address SRH information needs reported by students, and to promote service utilization. The project is being piloted in Adama University under the USAID funded Integrated Family Health Program, implemented by Pathfinder International (PI) and John Snow Inc.

Purpose: m4Youth aims to test feasibility and acceptability of SRH information provision via SMS to university students as an complement to peer education and YFS. The project also seeks to support peer educators (PEs) by providing activity suggestions and meeting reminders. In order to determine impact on students' knowledge and service utilization, a mixed method, pre-post study is being conducted.

Method: At baseline, 384 randomly selected students completed a self-administered questionnaire with questions on socio-demographics, SRH knowledge, service utilization, and acceptability of SMS communication channel. Qualitative in-depth interviews (IDI) were conducted with PEs. Additionally, six groups of students participated in Pathways to Change sessions, a PI methodology for identifying behavioral barriers and facilitators. Baseline data informed SMS content development which was then pretested. m4Youth was launched in April 2014. Utilization and system functionality is being monitored. A follow-up survey will be conducted 6 months after project start up.

Result: At baseline, the majority of surveyed students, 96%, had cellphones, 93% knew how to send SMS and 90% expressed interest in receiving SRH information via SMS. Fifty two percent of respondents said they wanted to receive SMS information on STI, 52% on HIV/AIDS and 43% on contraception. ID is indicated PE support for the project. For example, a male PE said "Some students may fear asking questions from peer educators because they think they may be judged for not knowing... The SMS project will provide an alternative to fill this gap."

The project catchment area (Adama University) included 17,000 students and 100 PEs. Within the first nine weeks, 262 students had used m4Youth. Of six available content menus, the most frequently accessed was Sexuality (39%) and Contraceptive Methods (20%), followed by STI/HIV (15%), Healthy Abusive Relationships (12%), Where to Find Services (8%), and Unsafe Abortion (6%). We observed a decline in messages demand overtime.

Conclusions: Although baseline results showed interest in SRH information via SMS, system use was lower than expected and declined over time. This may be due to low awareness of the service and limited promotional activities. The Sexuality menu may have been accessed more frequently because its content includes more sensitive topics, like masturbation and pleasure, which are not often addressed in traditional risk focused SRH education. End line results will be ready by December 2014 and will provide insight on the intervention.
The Assessment of the Role of Men in Long Acting and Permanent Contraceptive Use among Currently Married Men Aged 20-64 in Mizan-Aman District, South Western Ethiopia. 2014. Kebedew Mulatu, MPH, Mizan Tepi University; Wubegger Mekonnen, PhD.

Introduction: Though women bear the physical, psychological and emotional strain of pregnancy and childbirth, it could not mean that fertility and contraception are based exclusively on the female population. Thus, the social roles of men who are dominant not only in decision making within the family, but also at community leadership levels have been overlooked. Most family planning programs give less attention to the understanding of men’s role in the effective and steadfast utilization of contraceptives. Husbands decide on most issues and their wives are expected to be abided by their decisions or their perceived wishes. Thus, this male dominated family structure would have significant contribution in matters of reproduction, and has great influence on a couple's family planning decisions and utilization.

Objective: The main aim was to assess men's involvement in long acting and permanent contraceptive use among currently married men aged 20-64 in Mizan-Aman District, South Western Ethiopia.

Methods: Community-based cross-sectional study was conducted. A mixed method of quantitative and qualitative research was used. A total of 554 study participants were recruited for the study. The investigator prepared, pre-tested and structured questionnaire to collect data. Odds ratio along with 95% Confidence interval in Multivariate Binary Logistic regression was used to assess the strength and significance of the association. Thematic analysis has also been adapted for analyzing the qualitative data.

Results: A total of 521 men were included in the analysis. The majority of the respondents were in the age group of 20-30 years 178 (34.5%) making the mean age and standard deviation [SD] 36.9 (± 9.3) years. More than half (62%) of the study participants had discussed with their wives on the number of children that they want to have, while the rest did not discuss. Almost all, 508 (97.5%) of them reported that they heard about modern family planning, while only 394 (78%) of them had ever heard about LAPMs. Regarding to attitude, 179(34.4%) had unfavorable attitude, while 130(25%) had favorable attitude and the rest 212(40.7%) were indifferent way towards LAPMs among the study population. Only 11.5% the respondent's wives used LAPMs, however, no study participant used any of these methods. For qualitative part, 31 years old male participants described as, "In our community the usual understanding is, when the child is born it is not born only with mouse but also with foot and hand, so he can do and live by his own and when we got old he/she may help us. If you have only one child he/she may pass away so it is better to have more children. Discussions between couples about LAPMs in the last 12 months (AOR=4; 95% CI.1.9-8.2) and on the number of children they want to have (AOR=3.1; 95%
Cl.1-9.2), going to health facilities with wives to discuss about FP with health providers (AOR=2.7; 95% CI. 1.3-5.6), and supporting the use LAPMS (AOR=4.5; 95% CI. 1.6-12.5) were significantly and strongly associated with utilization of LAPMs when compared to their respective counterparts. The qualitative results also showed that male has great role in FP decision and utilization. That is 36 years old Male informants who is a teacher described as, "Since they are family leaders, they have to play great role. Men have power to influence and persuade their wives. So for me, it is good to change the attitude of male, because they can easily change the attitude of their wives or even they can use the method by themselves. But if we try to change the attitude of female only, we cannot be successful. And there must be alternative method for male also, as that of females."

Conclusions and recommendation: Discussion between couples on the use of LAPMs and on the number of children they should have; and men’s approval of LAPMs’ utilization were factors that influencing utilization of LAPMs in the town.

Health extension workers should enhance discussion between couples. Town level health programmers should advocate discussion between couples and men’s awareness on LAPMs. Further research, including both men and women is recommended in the Town and beyond.

Background: Empowering women's decision making on modern contraceptive methods has a substantial public health importance for the improvement of maternal health service, reduction of maternal and child mortality. However, evidences showed that women's in Sub-Saharan Africa are either under collective decision making with their partners or completely rely on the male partner's decision on issues that affect their reproductive live. Identifying the major factors of reproductive age married women's decision making power on family planning use has considerable importance for appropriate family planning interventions.

Objectives: The aim of this study was to assess the decision making power of reproductive age married women's on family planning and factors associated with decision making power in Mizan-Aman City Administration, South Ethiopia, 2013.

Methods: A community based cross-sectional study has been employed among married women in the city administration. A simple random sampling technique was used to select the study participants. A pre-tested and structured questioner via interview techniques was used to collect the data. Binary logistic regression analysis was used to identify associated factors. Odds ratio with 95% CI was computed to assess the strength of the associations.

Result: Over all around two-third (67.2%; 95% CI (67.16, 67.25)) of married women were found to have power to decide about their family planning usage. Attending secondary education (AOR: 9.044, 95%CI: (4.504, 18.163)), government employee in occupation (AOR: 4.840, 95%CI: (2.034, 11.521)), government employee in husbands occupation (AOR: 2.710, 95%CI: (1.235, 7.968)), husbands' attending college or university education (AOR: 11.288, 95%CI: (4.659, 27.349)) and younger age (AOR: 0.266, 95%CI; (0.094, 0.748)) were statistically significant factors associated with for better decision making power of women's on the use of modern contraceptive methods in study area.

Conclusions: women's had better power to make decisions on modern contraceptive use in the city administration compared with the national report. Empowering women's decision on the utilization of modern contraceptive better to promoted by considering educational status of women's and their husband.

Keywords: Married women's, Family planning, Mizan Aman city administration
The Relationship between Physical Exercise and HIV AIDS, A Systematic Review and Meta Analysis.  Daniel Kelber, Lecturer, Debre Markos University, Ethiopia

There are different factors which escalates HIV related deaths. Most of them could be expressed by hypokinetic conditions. It is difficult to get a single research which does not support physical exercise for HIV patients. There are a lot of researches published on the relationship between Physical exercise and HIV AIDS. However there is a gap in indicating the specific benefits of exercise as well as the specific training to be used to better manage HIV related complications. Studies which are under the PubMed search engine and organizational reports, published from the year 1998 to 2014 were used. 37 papers which are more related with the issue used. The effect of physical exercise in the management of hypokinetic disease, immunity, body weight, fatigue and Psychological status is thoroughly discussed. The Exercise tolerance of People living HIV AIDS is determined. The role and intensity of Resistance, Aerobic and Resistive aerobic exercise for HIV management is decidedly addressed. Data based comparison focused on the association between aerobic exercise and HIV AIDS is made. The constellation of studies on the area approved that physical exercise plays a vital role for the management of HIV related complications. Nevertheless, the specific mode and dose of physical exercise is yet to be determined.

Keywords: Physical Exercise, HIV AIDS, HIV management
Anemia and Risk factors in HAART Naïve and HAART Experienced HIV Positive participants in South West Ethiopia: A comparative Study. Lealem Gedefaw¹, BS, MS; Tilahun Yemane¹ (MD, MS); Assistant professor), Zewdineh Sahlemariam¹ (BS, MS), Daniel Yilma² (MD, Assistant professor) ¹Department of Medical Laboratory Science and Pathology, College of Public Health and Medical sciences, Jimma University, Ethiopia ²Department of Internal Medicine, College of Public Health and Medical Sciences, Jimma University, Ethiopia

Background: Human immunodeficiency virus (HIV) infection and its treatment cause a range of hematological abnormalities. Anemia is commonly observed and multifactorial in origin in HIV positive people and has been associated with increased mortality rates and disease progression.

Objective: We aimed to determine the prevalence and risk factors of anemia in highly active antiretroviral therapy (HAART) naïve and HAART experienced HIV positive people.

Methods: A facility-based comparative cross sectional study was conducted in Jimma University Specialized Hospital from February 1 to March 31, 2012. A total of 234 HIV positive persons, 117 HAART naïve and 117 HAART experienced, were enrolled in this study. Blood and stool specimens were collected from each participant for hemato logical, immunological and parasitological investigations. Socio-demographic characteristics and clinical data of patients were collected using pre-tested questionnaire. Statistical analysis of the data (Chi-square, student’s t-test, logistic regression) was done using SPSS V-16.

Results: The overall prevalence of anemia was 23.1%. The prevalence of anemia in HAART naïve and HAART experienced people was 29.9% and 16.2% respectively (P=0.014). Presence of opportunistic infections (P=0.004, 95%CI=1.69-15.46), CD4+<200 cells/µl (P=0.001, 95%CI=2.57-36.89) and rural residence (P=0.03, 95%CI=1.12-10.39) were found to be predictors of anemia for HAART naïve participants. On the other hand, HAART regime (ZDV/3TC/NVP) and the duration of HAART were found to be predictors of anemia for HAART experienced groups.

Conclusion: The prevalence of anemia in HAART naïve patients was higher than HAART experienced patients. Risk factors for anemia in HAART naïve and HAART experienced HIV positive persons were different. Hence, there is a need for a large scale and longitudinal study for further characterization of the type of HIV associated anemia.

Keywords: Anemia, HIV, Highly Active Antiretroviral Therapy
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Evaluation of Adherence to Antiretroviral Therapy among HIV/AIDS Patients in Amhara Regional State, North Shewa Zone, Ethiopia. Tilahun Aleyn, Aweke Abebaw, Kaleyu Brhane and Zinoye Tekeste.

Introduction: There is currently lack of studies that identify the level of adherence to ART and factors influencing adherence in Northern Ethiopia. Therefore, this study was conducted to investigate the level of adherence to ART and potential factors affecting it among HIV/AIDS patients in Amhara Regional State, Northern Ethiopia.

Methods: A cross-sectional survey was conducted among adult HIV/AIDS patients from October 2010 to February 2011. Patients were interviewed using a structured questionnaire about their experience of taking ART, socio-demographic characteristics and reasons for non-adherence to ART. Adherence to ART was assessed using pill count method and patient’s self-report. Patients who took < 95% of the specified regimens were identified as non-adherent.

Results: A total of 224 patients were participated in the study; 66.52% females and 33.48 % males, 89.73% were adherent to ART. Gender, family size, family income, HIV/AIDS disease stage and alcohol uptake were the main risk factors for missing ART dose (P<0.05 for all). The most common reasons of missing dose were away from home 82.61 % (19/23), forgot 52.17 % (12/23), busy with other things 52.17% (12/23) and simply forgot 52.17 % (12/23).

Conclusion: The study revealed that there was modest level of adherence to ART among the study participants. However, factors such as alcohol uptake, family size and family income were challenges for strict adherence to ART. Therefore, individuals with such challenges need special attention by health workers and policy makers to improve their ART adherence.

Keywords: Adherence; ART; HIV/AIDS
Prevalence and Antimicrobial Susceptibility Patterns of *Shigella* Species among Outpatients with Acute Diarrhea Attending at Mekelle Hospital, Tigray, North Ethiopia.  *Atsbeha Gebrekidan, Medical Microbiology and Immunology Unit, College of Health Sciences, Mekelle University, Getahun Kassay, Medical Microbiology and Immunology Unit, College of Health Sciences, Mekelle University, Tesfaye Asmelash, Medical Microbiology and Immunology Unit, College of Health Sciences, Mekelle University and Mekelle University research and Community service Vice president*

**Background:** Shigellosis and its emerging of multidrug resistant strains are the main public health problem throughout the world especially in developing countries.

**Objectives:** To determine the prevalence and antimicrobial susceptibility patterns of Shigella species among outpatients with acute diarrhea attending at Mekelle Hospital, Tigray, north Ethiopia.

**Methods and materials:** A cross-sectional study was conducted at Mekelle Hospital from September to October, 2014. A total of 216 outpatients with acute diarrhea were selected using convenient sampling technique. Diarrhea specimens were collected and processed for bacterial isolation, and antimicrobial susceptibility testing using standard bacteriological techniques. Data were coded and entered for statistical analysis using SPSS version 16.

**Result:** Acute diarrheal Specimens were collected from 109 (50.5%) males and 107 (49.5%) females. The study participants were ranged from 2 months to 80 years old. Shigella species were isolated from 15 (6.9%) study participants. Of the total *Shigella* species isolated in the study, 10 (12.5%) were identified from children less than sixteen years and 5 (3.7%) were isolated from the study participants whose ages were from sixteen and above (P= 0.014). Duration of diarrhea, consistency of diarrhea, presence of latrine, source of drinking water and hand washing habit before meal showed a significant association with the prevalence of *Shigella* species (P= <0.05). All isolates of *Shigella* species were resistance to Ampicillin and high level of sensitivity was observed for Norfloxacin and Ciprofloxacin (93.3%) and gentamicin (86.7%). Multiple drug resistance to as many as six antibiotics was also detected and 38.9% was resistance to three antibiotics.

**Conclusion:** High prevalence of *Shigella* species was isolated from children under sixteen years with multiple antibiotic resistance isolates. Responsible bodies should be emphasized on prevention measures and Norfloxacin and Ciprofloxacin can take as a choice of treatment in areas where culture and sensitivity are not available.

**Keywords:** *Shigella* Species, Antimicrobial, Diarrhea, Outpatients, Mekelle
Evaluation of the Efficacy of Bleach Routinely used in Health Facilities Against Mycobacterium tuberculosis Isolates in Ethiopia. Daniel Mekonnen, BS; MS in Medical Microbiology, Bahir Dar University, College of Medicine and Health Sciences Department of Microbiology, Immunology and Parasitology; Aschalew Admassu; Belaynew Wassie; Fantahun Biadglegne

Background: The practice of infection prevention by health care workers in the health care facilities is very low or neglected in Ethiopia. Due to wide spread occurrence of Multidrug resistance tuberculosis and other bacteria in the health care environments, the strict use of safety measures is very important. However, most of the safety devices and chemicals used are not being calibrated and, checked for safety and efficacy respectively. In Ethiopia, the most widely used disinfectant is 5% Hypochlorites. However, Ethiopian national health safety and infection prevention guideline recommendation on the use of bleach is not consistent and varying from 0.1%-4%. The purpose of this study was therefore to assess the effective time-concentration relationship of sodium hypochlorite against Mycobacterium tuberculosis complex isolates in the absence of any organic load.

Methods: This experimental study was conducted in Bahir Dar Regional TB laboratory which is bio-safety label 3, from February-June 2013. All the 5 lines of defense (administrative, safety equipment and good laboratory practice) have been used during the experiment to protect the staff, the community and the environment. Test suspensions of 1.5 X 10^6 CFU/ml prepared using normal saline containing 0.5% Tween 80. From 5% stock, 0.1%, 0.5%, 1% and 2% bleach was prepared. A 1ml of test strain suspension and 1ml of bleach mixed and allowed to stand until the specified time achieved, neutralized by 48 ml phosphate buffer. 100μl from the diluted sediment were spread on two L-J mediums and incubated at 37°C for 8 weeks.

Results/Findings: When 0.1% bleach was used for 10 min, majority 11/20 of isolates showed 3 x 10^6 CFU/ml growth (ME=4. 4) which was inefficient. However, when the time increased, the log10 reduction was acceptable, ME >5 and it was effective. The bleach solution containing 0.5% and above was effective in all respective times. In this study, there is no difference observed in the tuberculocidal activity of bleach against resistant and sensitive TB strains.

Organic matter in the form of Sputum, serum, blood, pus can interfere with bleach activity by a chemical reaction between the bleach and the organic matter resulting in a complex that is less germicidal or nongermicidal. Alternatively, organic material can protect microorganisms from attack by acting as a physical barrier. This study done without using these organic load.

Lessons and Recommendations: Our study showed that in the absence of any organic load, 0.1% bleaches over 15 min and 0.5 % bleaches over 10 min were found to be tuberculocidal and 0.1% for 15min can be used for surface disinfection. Tuberculocidal activity of bleach in the presence of organic load should done in the future.
Drugsusceptibility and Genotypic Assessment of Mycobacterial Isolates from Pulmonary Tuberculosis Patients in North East Ethiopia. *Minayelet Mary*¹ ², Solomon Habtemariam², Endalaman Gadisa¹, Abraham Assefa¹ Desie Health Science College, Dessie, Ethiopia;² Addis Ababa University, Addis Ababa, Ethiopia;³ Armauer Hansen Research Institute, Addis Ababa, Ethiopia

**Background:** Tuberculosis (TB) is a major public health problem in Ethiopia. The burden of TB is aggravated by both ongoing transmission and emergence and expansion of drug resistant TB. Different lineages of *Mycobacterium tuberculosis* have been reported in many parts of the country.

**Method:** Sputum samples were collected from smear positive pulmonary TB patients aged ≥10 years between October 1, 2012 and September 30, 2013. *Mycobacteria* were isolated on Loewenstein-Jensen medium. Each isolate was characterized by deletion typing and spoligotyping. Drug sensitivity was determined with the indirect proportion method using Middlebrook 7H10 media. Association of drug resistance with possible risk factors was determined.

**Result:** A total of 144 smear positive pulmonary tuberculosis patients were enrolled. The majority, 89.9% (n=128) of participants were new cases and 11.1% (n=16) had history of previous anti-TB treatment. Resistance to any of the four drugs tested was 17.8% (n=21). A high frequency of any resistance was observed for isoniazid (13.6%, n=16). There were no multidrug-resistant (MDR)-TB among new cases but 2 (13.3%) of the re-treatment cases had MDR-TB, showing significant association with history of anti-TB treatment (p<0.01). The observed higher isoniazid resistance (p=0.58) in 31-45 years age group is worth special attention. Forty four different types of spoligotype patterns were identified and 74.1% were grouped into 13 clusters. The dominant strains were SIT 25 (18.1%, n=21), SIT 53 (17.2%, n=20) and SIT 149 (8.6%, n=10). Lineage 4 was the predominant lineage followed by lineage 3 and lineage 7 comprising 65.5% (n=76), 28.4% (n=33) and 6% (n=7) respectively.

**Conclusion:** Wide spread occurrence of lineage 4 and lineage 3 of the modern lineages and high strain clustering indicates high ongoing transmission. Presence of higher resistance of isoniazid in the working and mobile age group may increase risk of transmission of drug resistant strains.

**Keywords:** drug susceptibility, Ethiopia, lineage, Spoligotype, strain diversity, tuberculosis,
Establishment of Normal Reference Intervals for Cd3+, Cd4+, Cd8+ and Cd4+ to Cd8+ Ratio of T- Lymphocytes in HIV Negative Adults from University of Gondar Hospital, North West Ethiopia. Addisu Gez, Department of Medical Laboratory Science and Pathology, College of Public Health and Medical Sciences, Jimma University, Ethiopia; Biniam Mathewos, MSc, Department of Immunology and Molecular Biology, College of Medicine and Health Sciences, University of Gondar, Ethiopia; Beyene Moges, PhD candidate, Department of Immunology and Molecular Biology, College of Medicine and Health Sciences, University of Gondar, Ethiopia.

Background: Reference values for the counts of CD3+, CD4+, CD8+ and CD4 to CD8 ratio T-lymphocyte subsets are adopted from textbooks, which refer mainly to Caucasian population. Therefore, it is important to establish local standard reference values for a particular population.

Objective: To establish the normal reference value for CD3+, CD4+, CD8+ and CD4 to CD8 ratio T-lymphocyte subsets cell count for Gondar town in different socio-demographic characteristics.

Methods: Cross-sectional study was conducted on apparently healthy adult individuals who visited voluntary council and testing clinic from April 16 to May 13, 2013. Priori sampling method was conducted and 320 study participants were included. Using semi structured and pretested questionnaire socio-demographic characteristics and relevant clinical data was collected. Whole blood was analyzed using fluorescence-activated cell sorting (FACSCount) to enumerate the T-cell sub populations and the data was analyzed by SPSS version 20.

Result: From the total participant, 161 (50.3%) men and 159 (49.7%) were women. The majority of the study participants were 224 (70%) single in marital status, 95 (29.7%) were student, and 292 (91.3%) were Amhara ethnicity. The overall 95% reference interval were (655-2,823 cells/μl), (321-1,389 cells/μl), CD8+ (220-1,664 cells/μl) for CD3, CD4 and CD8+ T lymphocyte subsets respectively. The CD4 to CD8 ratio was 0.5-2.5.

Conclusion: The overall CD3+T-lymphocytes reference interval in the current study was wide, low CD4+T-lymphocytes, CD4 to CD8 ratio, and high CD8+ T-lymphocytes values were observed.

Recommendation: Since the reference value for CD4+T-lymphocyte is low in the current study, physician should aware to increase the lower cut of CD4+ T-lymphocyte values for initiation of antiretroviral drugs.

Keywords: CD4+ and CD8+ T-lymphocytes, Reference values, Gondar.
Intestinal Parasitosis in Relation to CD4+ T Cells Levels and Anemia among HAART Initiated and Non-HAART Initiated Pediatric HIV Patients in Zewditu Memorial Hospital, Addis Ababa, Ethiopia. 

Hylemariam Mihireti1,2, Bineyam Taye2, Aster Tsegaye2 1Wollega University, College of Medical and Health Sciences, Department of Medical Laboratory Sciences 2 Addis Ababa University, School of Medical Laboratory Sciences

Background: Intestinal parasites (IPs) are major concerns in most developing countries where HIV/AIDS cases are concentrated and almost 80% of AIDS patients die of AIDS-related infections. In the absence of HAART, HIV/AIDS patients in developing countries unfortunately continue to suffer from the consequences of opportunistic and other intestinal parasites. The aim of the study was to determine the prevalence of intestinal parasites in relation to CD4+ T cells levels and anemia among HAART initiated and non-HAART initiated pediatric HIV patients in Zewditu Memorial Hospital, Addis Ababa, Ethiopia.

Methods: A prospective comparative cross-sectional study was conducted among HAART initiated and non-HAART initiated pediatric HIV/AIDS patients of Zewditu Memorial Hospital (ZMH) between August 05, 2013 and November 25, 2013. A total of 180 (79 HAART initiated and 101 non-HAART initiated) children were selected by using consecutive sampling. Stool specimen was collected and processed using direct wet mount, formol-ether concentration and modified Ziehl-Neelson staining techniques. A structured questionnaire was used to collect data on Socio-demographic and associated risk factors. Data were cleaned for errors, coded and double entered in EpiData version 3.1. The data was analyzed by SPSS version 16 software. Logistic regressions were applied to assess any association between explanatory factors and outcome variables. P values < 0.05 were taken as statistically significant.

Results: The overall prevalence of IPs was 37.8% where 27.8% of HAART initiated and 45.5% of non-HAART initiated pediatric HIV/AIDS patients were infected with IPs (p < 0.05). Cryptosporidium species, E. histolytica/ dispar, Hookworm and Taenia species were IPs associated with lower CD4+ T cell counts <350 cells/μL in non-HAART patients. The overall prevalence of anemia was 10% in HAART and 31.7% in non-HAART groups. Intestinal parasitic infection (IPI) was significantly associated with anemia in non-HAART patients [AOR, 95% CI: 4.5(1.3, 15.2), P< 0.05]. Hookworm, S. stercoralis and H. nana were helminthes significantly associated with anemia in non-HAART patients. The prevalence of IPs in non-HAART patients was significantly associated with Eating unwashed/raw fruit [AOR, 95%CI: 6.3(1.2, 25.6), P<0.05], open field defecation [AOR, 95%CI: 9.3(1.6, 53.6), P<0.05] and diarrhea [AOR, 95%CI: 5.2(1.3, 21.3), P<0.05]. IPs significantly increased in rural residents [AOR, 95%CI: 0.4(0.1, 0.9, P<0.05)].

Conclusion: The overall prevalence of intestinal parasites (IPs) significantly differed by HAART status and cryptosporidium species were found only in HAART naïve patients with low CD4+ T cell counts. Anemia was also more prevalent and significantly associated with IPs in non-HAART patients. This study identified some environmental and associated risk factors for intestinal parasitic infections. Therefore, Public health measures should continue to emphasize the importance of environmental and personal hygiene to protect infections with intestinal parasites and maximize the benefits of highly active anti-retroviral therapy (HAART).
Improving Skilled Birth Attendance Service Utilization through a Performance and Quality Improvement Intervention. Alemnesh Tekleberhan, Hannah Gibson

Background: Ethiopia is one of the countries in sub-Saharan Africa with high maternal mortality ratio of 676 per 100,000 live births and low institutional delivery by skilled birth attendants; only 10% women delivered in health facilities (EDHS 2011). Despite the government’s efforts to improve maternal health, and an increase in the number of skilled health care providers and health facilities in the country, skilled maternal and newborn health (MNH) service utilization remains low.

Several studies have examined the socioeconomic and demographic factors affecting the utilization of antenatal care (ANC), labor and delivery services. Some studies in Ethiopia also indicated perceived poor quality of care, fear of disrespectful care, and lack of respect for cultural beliefs surrounding child birth from providers, are reasons for women not to seek facility based MNH care.

Program Interventions: The USAID funded Maternal and Child Health Integrated project (MCHIP) supported the government of Ethiopia to improve the quality of MNH care and increase service utilization through the introduction of a performance quality improvement approach (Standards-Based Management and recognition (SBM-R)) and the concept of Respectful Maternity Care to 104 health centers and 12 hospitals.

As part of the performance improvement approach, service providers, facility managers and district health managers were trained in SBM-R. Woreda managers and facility staff were empowered to lead the process and facilities conducted baseline assessments to identify major gaps. Based on the identified knowledge and skill gaps, MCHIP provided skill trainings in basic emergency obstetric and newborn care, essential newborn care and prevention of mother to child HIV transmission. In addition, minimal financial and material support was provided to kick start the quality improvement process.

Results: Following these interventions health facilities instigated changes such as ensuring patient privacy, allowing birth companions in labor, supporting birth positions of choice, including important cultural aspects like coffee/porridge ceremonies, religious blessings of facilities and arranging separate post-natal rooms with a bathroom.

As a result, these health facilities showed a marked increase in institutional delivery from a baseline of 8.6% to 31%, first ANC visit from 63% to 82%. Similarly fourth ANC visits increased from 5.9% to 21%.

Lessons learnt and the way forward: Performance standards linked to a quality improvement process can lead to increase in health service utilization. In addition to improving the quality of care at the facility level, the women’s choice on where to give birth involves a complex balance between freedom of choice, control of the process and the outcome, and important traditional norms associated with the birthing process. Buy-in and support of all stakeholders, peer and public recognition are an important component of the process.

Provision of culturally sensitive MNH care encompasses respect for a woman’s basic human rights, including respect for women’s autonomy, dignity, feelings, need, choices, and preferences, including choice of companionship wherever possible.
Building the Capacity of Health Centers to Provide LAFP at the Community Level Improves Access and Utilization of Contraceptives. Ketema Dessalegn (MD, MPH), Regional FP coordinator in IFHP-SNNPR, Mengistu Asnake (MD, MPH); Ismuwel Ali, MPH, Yewondwosen Tilahun (MD, Gyn & Obst)

Significance/background: Ethiopia, with a total population of 84 million is the second most populous nation in Africa. Although one in every three Ethiopian women (29%) has met need for family planning, the unmet need still remains high (25%).

The MOH in Ethiopia launched Implanon scale-up program in 2009. The Integrated Family Health Program (IFHP) became involved in the Implanon scale-up program. The program started training of HEWs on Implanon insertion since 2009. During the trainings, it was observed that almost all health centers (HCs) did not have capacity for LAFP service provision to support HEWs in static and outreach services. Additionally, review of data from 7,500 clients served with different FP methods during the practicum sessions of the Implanon training revealed that more than 25% of those who received Implanon were new acceptors and about 60% shifted methods from short acting to LAFP methods. It was observed that clients received Jadelle and IUCD insertion, as well as removal services, which could not be provided at the health post (HP) level.

Based on this observation, IFHP introduced a program support intervention named “LAFP back-up support”. The health centers leading the PHCU’s were therefore capacitated to provide LAFP static and out-reach services. The HCs received skill based LAFP trainings, post training equipment and supplies, and regular follow-up visits; to enable them provide a regular LAFP back-up (out-reach) support to HPs.

Program Intervention/Activity Tested: Training HC staff on LAFP, supplying contraceptive commodities and supplies, conducting regular follow up capacitates HCs to provide LAFP back-up support to HP; The LAFP back-up support significantly improves access to and uptake of LAFP, and increases FP method mix at the HP (community) level.

Methodology: From October to December 2014, client service data was collected from 48 HCs and 98 HPs where the back-up interventions took place. Data from 48 HCs supported to avail LAFP services at the HP level was analyzed and compared with the FP services uptakes at the HP level three months before and after the back-up support. The back-up support was integrated in to the existing linkage between the HCs and the HPs (PHCU).

Results/key findings: All the 48 HCs included in the review were able to provide all types of LAFP. Through the back-up LAFP support, a total of 3,484 clients received all FP methods in three months, 2,060 clients (59.1%) received LAFP services (Implanon, Jadelle and IUCD). This is a significant increase over the 881 (7.1%) women who were provided only LAFP (Implanon) services at the HP level over the three months before the start of the back-up service.

The back-up support allowed 1,277 (36.5%) clients to get FP services that could not previously be provided at the community (HP) level; whereas 2,207 (63%) of the clients were provided with the FP services that are already routinely provided at the HP level.

As a result of availing the LAFP service at the HPs, the back up support cut the average time required for clients to travel to and from the nearby HCs to by an average of 18 minutes (from 64.9 to 46.9 minutes). All the HEWs at the 98 HPs responded that the back-up support from the HCs to the HP has increased the method mix.
Program implications/lessons: Capacitating HCs through training of staff on LAFP, providing equipment and supplies and regular follow-up to enable HCs provide back-up (outreach) services increases access to and utilization of LAFP, and improves method mix. The Backup support improves the method mix through availing FP methods that could not previously be provided at the HP level.
Improving Access, Utilization and Method Mix through Training of Health Extension Workers on LAFP-Implanon; the Experience of the Integrated Family Health Program (IFHP) Ethiopia. 

*Ademis Tesfai (MSc), Regional FP Coordinator in IFHP-Oromia; Kidest Lallu (MD, MPH), Yewondwosen Tilahun (MD, Gyn.& Obst); Tariku Negatu (MPH,CAHM)*

**Significance/background:** On average, a woman in Ethiopia gives birth to 4-5 children in her reproductive years. Although all modern contraceptive methods are available in the country and contraceptive use has been increasing from time to time, access and utilization of Long Acting Family Planning (LAFP) methods is very limited (4.2%). Although unmet need for FP declined in the past decade, it is still high at 25% according to the 2011 EDHS.

To avail LAFP-Implanon at the community level, the Ministry of Health (MoH) launched a national Implanon scale-up program in 2009. The program includes training of Health Extension Workers (HEWs) to insert Implanon at the health post (HP) level. USAID’s Integrated Family Health Program (IFHP) as a major partner to the MoH, trained HEWs on Implanon insertions and provided post training and gap filling supply support to initiate the service at the HP level.

**Program intervention/activity tested:** Through the skill training of HEWs on Implanon insertion and supporting them with a post training supply to immediately initiate the service following the training, it is possible to create access to utilization of LAFP-Implanon services at all HPs by trained HEWs.

**Methodology:** Beginning from July 2009, Training of Trainers (ToT) was given to HEW supervisors and other clinical care providers to roll-out the training to HEWs. The trained HEWs were provided a post training supply package to initiate Implanon service immediately after the trainings. They were followed for three months and a program review meeting was conducted with the trained HEWs and public health managers to evaluate the program and share experiences. The initial learning phase training performances and the program review meeting assessment results were reported to the MOH. Based on the findings, Implanon program was endorsed by the MOH to be scaled-up. Subsequently, from July 2009 to February 2010, a program assessment was conducted among 7,500 clients that received different FP methods during the training period. Following the result, IFHP introduced a program support interventions such as back-up support for LAFP from the HCs to the HP level, implant removal supporting HCAs and a gap filling of supply package to the previously trained HCs.

The program was started in 8 selected weredas/districts in the four big regions of the country as an initial learning phase.

**Results/key findings:** From July 2009 to September 2014, a total of 418 TOT and roll-out Implanon trainings were conducted. As a result, over 1,800 HEW supervisors and other clinical health care providers and 8,200 HEWs were trained during the ToT and roll-out trainings, respectively. During these trainings, a total of 82,702 clients received different FP methods, 70% Implanon and 30% other FP methods.

The program assessment conducted among 7,500 FP clients showed that; of all the clients surveyed, 25% were found to be new LAFP acceptors and more than 60% of them had shifted from a short acting to a LAFP method.

The ‘post-training’ and the ‘gap-filling’ supply provided to 8,200 HEWs enabled them to serve more than 873,000 potential clients to receive Implanon services.

During the program period, about 139 HCs were supported with implant removal and IUCD kits; consumables; and fuel for transportation to support the targeted health posts with regular visits to provide LAFP services. In addition
to the 139 HCs, about 70 HCs were equipped with implant removal kits and consumables to handle implant removal referrals from their respective catchment HPs and other removals from the community. With the two program-support activities, from September 2011 to December 2014, a total of 60,798 clients were served with different FP services and more than 20,498 clients with Implant removals.

**Program Implications/lessons:** With a quality skills-based training for frontline Health care providers-HEWs, it is possible to avail the LAFP-Implanon at the community level—health post. Regular follow-up and post-training supply support are critical issues to consider.

Establishing ‘program-supporting’ interventions for LAFP programs in countries like Ethiopia complements the ongoing program.
Determinants of Intent to Migrate among Health Professionals Working in the Public Hospitals of Western Oromia, Ethiopia. *Yilma Abebe Gudeta, M.Sc.* (Biostatistics and Health Informatics), Oromia Regional Health Bureau; Hailemariam Lemma, PhD; Dejen Yemane, M.Sc.

**Background:** The human resource is fundamental to achieve Millennium Development Goals. However, migration of health professionals critically affects the health system particularly in countries with limited resources. Ethiopia is one of the 57 countries experiencing critical shortages of human resources for health. Of the total 1,310 Ethiopian doctors and 5,342 nurses in 2006, 30% and 17% of them respectively were living and working abroad. Between 1999 and 2005, the public health sector of Oromia region lost 60% of its doctors and more than 50% of pharmacists.

**Objective:** The aim of this study was to explore the determinants of intention of migration among health professionals working in the public hospitals of western Oromia region, Ethiopia.

**Methods:** The study was undertaken in eight public hospitals of western Oromia, using quantitative cross-sectional design with multi-stage sampling technique on 407 study participants. An exploration of the determinants was based on socio-demographic and push-pull factors to estimate the intention of health professionals’ migration and was analyzed using Generalized Estimating Equation (GEE).

**Results:** The intention of migration of health professionals is as high as 65.4%. Factors statistically significant for migration are being male (OR=1.58, 95%CI=1.06, 2.35; p-value=0.024); educational background with first degree and above (OR=2.25, 95%CI=1.50, 3.37; p-value=0.001), low salary, incentives and allowances (OR=3.0, 95%CI=1.75, 5.16; p-value<0.001), poor access to further education (OR=2.53, 95%CI=1.44, 4.43, p-value=0.001), and lack of a second job in addition to a main job (OR=3.28, 95%CI=1.83, 5.88; p-value<0.001).

**Conclusion and Recommendation:** Every effort needs to be made to devise and implement a strong human resources retention strategy, and establish a mechanism to monitor the schemes associated with the outcomes which is crucial to reverse the current intended rate of health professionals’ migration.
Health Professionals Organizational Commitment and Associated Factors in Government Health Facilities of Gurge Zone, South Ethiopia. Gehremaniam Haikmicael (BSc Midwife, MPH), Mizan-Aman Health science College

Background: There is a general conviction that organizational commitment has a positive and significant impact upon business performance and reform process of health system. However, to the best of the investigators knowledge, there are no studies examining organizational commitment in the health care setting of Ethiopia.

Objective: To assess the level of organizational commitment and associated factors among health professionals in government health facilities of Gurge zone, south Ethiopia.

Methods: A facility based cross sectional study employing quantitative and qualitative methods, was conducted in 30 health centers and one general hospital from March, 20/2014 to April, 12/2014 in Gurge zone, south Ethiopia. A total of 424 health professionals were included in this study. A self-administered questionnaire asking about Sociodemographic and economic characteristics of the participants, organizational commitment, job satisfaction and perceived organizational support was used. Factor analysis was conducted to identify the measurement scales and factor scores were used in both binary and multiple linear regressions. Qualitative data collected using key-informant interviews were employed to support the findings from the quantitative survey.

Results: The response rate of this study was 93.6%. The percentage means score of organizational commitment for health professionals working in government health facilities of Gurge zone was 64.81%. This study found that perceived leadership style and training opportunity, perceived value and care for employee and perceived remuneration as predictors of organizational commitment. As well perceived staff interaction and perceived resource availability and work setting were factors affecting organizational commitment in this study.

Conclusions and recommendation: In this investigation, the percentage means score of organizational commitment for health professionals working in government health facilities of Gurge zone was 64.81%. Hence, we recommend health managers and policy makers to consider and maintain perceived value and care for employees, good perceived leadership style and training opportunity and adequate remuneration to foster a more high level of organizational commitment among health professionals in government health facilities of Gurge zone.

Introduction: Dogs' bites are the most important public health concern in Ethiopia. Following the report of dog bites from Kebrabeyah Woreda of Somali Region, investigation conducted to verify the existence of the dog bite and taking public health intervention.

Methods: Cross-sectional descriptive study was conducted between 20-25/11/2013. We reviewed and abstracted reported dog bite cases from Karamara hospital and community. Classification of exposures was done as per guidelines given by World Health Organization (WHO). We interviewed cases, Health and Veterinary personnel using a structured questionnaire. We visited sites from which cases were reported. Data was entered and analyzed using Epi-Info 3.5.1.

Result: Starting from 01/11/2013 to 30/11/2013, total of 16 dog bites reported from kebrabeyah. Patients were aged between 5 years and 50 years (median 15 and mean 21 years). Both sexes were equally affected. Majority of the victims 10 (62.5%) were in the age group of 5-15 years and school children. About 14 (87.5%) of the cases were WHO Classification of category III, & majority of victims 13 (81.3%) were unprovoked. Extremities were involved in 81.3% victims. Half of the victims has been reported within 24 hours of the bite. All bites were due to stray dogs. Most dog bites 13(81.3%) happened between midday & evening. About 14(87.5%) of the cases received post exposure prophylaxis (PEP) at Hospital. Majority of victims13(81.3%) were living around abattoir (slaughtering area) full of wastes & without fences. Lack of exposure on administration of PEP & no coordination between the animal health and public health services at woreda were among gap identified. Wound management, active case searching, referring cases to Karamara hospitals for PEP were among interventional activity conducted.

Conclusion: There were dog bites outbreak in Kebrabeyah town due to stray dogs. Living around the abattoir was contributing risk factor to be bitten by dog. Keeping sanitation of abattoir(fencing), On job training on administration of PEP, sensitization of school children on prevention, treatment and control strategies with combined efforts from both veterinary and medical staff(one health approach) is recommended.

Keyword: Dog bite, Kebrabeyah, Stray Dog

**Background:** Measles is a highly contagious vaccine preventable disease, and has been targeted for elimination in all six World Health Organization (WHO) regions. In Ethiopia, recurrent outbreaks have continued. On 25 January 2014, a suspected measles outbreak was reported from Gullele sub city-Keche Mehaniallem Orphanage, Addis Ababa to Federal Public Health Emergency Center. Investigation was made to confirm the outbreak, identify risk factors and implement control measures.

**Methods:** We conducted unmatched case-control study. Structured questioner was used to collect data from 14 cases and 42 controls. A case was defined as any person with fever and maculopapular rash and cough, coryza, or conjunctivitis or any person in whom a clinician had suspected measles. Controls defined as any person in the orphanage without sign and symptom of the disease. Nine blood specimens were collected for laboratory confirmation.

**Results:** A total of 14 measles cases were identified and no death was documented. Seven of nine blood samples tested positive for measles IgM antibodies. All cases were female aged 7 to 14 years and overall attack rate 4.3%. Median age of case was 10 years and control 13 years. The factor associated with illness were being unvaccinated (OR=7.1; 95% CI=1.6-31.2) and having contact with measles patient (OR=15; 95% CI=2.9-77.3). Knowledge about measles and previous measles infection were not statistically significant.

**Conclusion:** We confirmed a measles outbreak occurred in Keche Mehaniallem Orphanage, and cases were associated with low vaccination rate. A vaccination campaign, case management and health education program were implemented. Supplementary immunization activity should be enhanced and surveillance should be strengthened.

**Keywords:** Measles, outbreak, Orphanage, Ethiopia.

Background: Leishmaniasis is a major public health problem in vast areas of the World, with a huge impact on the economy of developing countries, like Ethiopia. The overall aim of the investigation was to confirm the suspected leishmaniasis outbreak & guide preventive measures in the affected district.

Methods: A cross sectional study conducted at Dega Damot district with a population of 165,252 and located 266 kms away from Bahir Dar city, the capital of Amhara region in Federal state of Ethiopia. The regional health bureau epidemiology unit verified a rumor of suspected leishmaniasis outbreak & started field investigation in Dega Damot district. From 26-30/03/2012, all suspected leishmaniasis cases were informed and gathered at a health center in the district. The team screened 121 suspected leishmaniasis cases clinically as well as using the standard case definition of the national surveillance guideline. From those screened; 48 cases fit the standard case definition and interviewed using questionnaire & 23 skin slit samples were examined under standard microbiology methods.

Results: Of the 121 suspected cases, 69(57%) were males. Most (50%) of the cases were under 20 years old. Based on the clinical diagnosis & case definition; 40 of suspected cases labeled as cases of leishmaniasis. Of these, 31(77.5%) diagnosed as cutaneous and nine (22.5%) were muco-cutaneous leishmaniasis. From 23 cases with active lesion, 12(52%) of them were positive for leishmania parasites microscopically. Of the clinically diagnosed cases, 38(95%) reported the presence of hyraxes around their dwelling area, 23(57.5%) and 12 (3%) cases live near the forest & near the gorge. Only seven cases utilize their bed nets always, seven utilize it sometimes, 34 not use bed net at all & all cases reported no travel history and had indoor sleeping habit.

Conclusions: Cutaneous and mucocutaneous leishmaniasis were the cause for the illness in the area. The most probable risk factor might be the presence of reservoir (e.g; hyraxes) for vectors in the affected villages. Therefore regional health bureau with supporting partners should establish treatment centre to manage cases and conduct further investigation on species identification of the causative agents of the disease. The behavior of vectors and reservoirs interaction with human & environment (animals like hyrax) should also be further studied in a one health approach.
The Prevalence and Associated Factors of Mental Distresses among Hawassa College of Health Sciences Students, SNNPR, Ethiopia. Tesfalem Tesfome, MSc, Hawassa College of Health Sciences, Hawassa, Ethiopia; Ribka Dinka, MPH; Temsegen Abdi, MPH.

Background: Mental health problems can have a profound impact on all aspects of college life: at the individual level, at interpersonal level and even at the institutional level. Mental health problems may also have a negative impact on academic performance, retention, and graduation rates. It was found that high levels of psychological distress among college students were significantly related to academic performance.

Objectives: To assess the prevalence and associated factors of mental distresses among Hawassa College of Health Sciences students.

Methods: Institution based cross-sectional study was conducted in Hawassa College of Health Sciences from May 1st to May 30/2013. Structured self-reporting questionnaire (SRQ20) developed by the World Health Organization (WHO) were used to assess the symptoms of mental distress. A stratified sampling technique was used to select a sample of 264 students. Data were entered using Epi-info and analyzed using SPSS for windows version 20. Descriptive statistics, bivariate and multivariable analysis were performed and statistical tests for significance were considered at the level of 5%.

Result: The prevalence of mental distress among students was found to be 22.3%. The sex specific prevalence of mental distress was 15.9% and 28.3% for males and females respectively. The most important covariates identified as a determinant factor for mental distress were; Sex, Academic level, Alcohol intake in last year and Cumulative Grade Point Average. Accordingly female students were 2.08 times more likely to have mental distress as compared with male students (AOR =2.08 [95% CI: 1.14-3.82]). Moreover, the odds of mental distress among third year students was 60 % lower as compared to second year students [AOR = 0.40; 95 % CI, (0.19-0.87)]. The odds of being mentally distressed were 69 % lower among students who did not take alcohol in last year as compared with students who used to drink alcohol in last year (AOR =0.31; 95 % CI, [0.13-0.76]). Finally, students with Cumulative Grade Point Average of less than 60% were 4.69 times more likely to be mentally distressed as compared to students having Cumulative Grade Point Average of 60% or more (AOR= 4.69;95% CI[ 2.46-8.96]).

Conclusion and Recommendation: The present study revealed that, more than one fifth of college students were mentally distressed making it a hidden problem of college students. The likelihood of having mental distress was high among students who were female, alcohol users and at lower academic level. Students having poor academic performance have also an increased risk of having mental distress. The present finding serves as the baseline information for all concerned bodies for planning of intervention strategies to combat mental distress among college students.
Prevalence and Determinants of Co-Morbid Depression Among Type 2 Diabetic Out Patients Presenting to Black Lion General Specialized Hospital, Addis Ababa, Ethiopia, 2013. Tesfa Dejenie, Master of Science in Adult Health Nursing, Lecturer in Debre Birhan University, Department of Nursing.

Background: The prevalence of diabetes mellitus is increasing among Ethiopian population overtime. The emotional consequences of diabetes have been scrutinized by a number of investigative teams and there are varying reports about the association of depression among type 2 diabetic individuals. However, there is limited data about this in Ethiopia.

Objective: To assess prevalence and determinants of co-morbid depression among type 2 diabetic out patients presenting to Black Lion General Specialized Hospital, Addis Ababa, Ethiopia.

Methodology: A cross-sectional study was conducted from September to May 13, 2013 on a random sample of 276 type 2 diabetic outpatients from Black Lion General Specialized Hospital. To get the individual respondents systematic random sampling was used. Data regarding patient characteristics were collected using structured interviewer administered questionnaire. Depressive symptoms were measured using the Patient health Questionnaire 9 (PHQ-9). Association between depression and determinant factors were explored using binary logistic regression model. Odds ratios were calculated to determine the strength of associations of selected variables.

Result: Totally 264 study participants were interviewed with a response rate of 95.6%. The prevalence of depression among type 2 diabetic outpatients was 26%. Twenty five (9.5%) of the respondents did not report any of depressive symptoms. From the rest of 239 study participants, 28.4% (n=75) participants fulfilled the criteria for mild depression i.e. PHQ 9 score 5-9, 12.1% (n=32) for moderate depression i.e. PHQ 9 score 10-14, 2.7% (n=7) for moderately severe depression i.e. PHQ 9 score 15-19, 1.5% (n=4) for severe depression i.e. PHQ 9 score 20-27, and 45.8% (n=121) participants had no clinically significant depression. The point prevalence of depression among type 2 diabetic patients was found 26%. The statistically significant risk factors were monthly family income ≤ 650 ETB (OR 3.4, 95% CI 1.28-8.87, p-value 0.01), poor social support (OR 15.5, 95% CI 2.07-116.95, p-value 0.01), diabetic retinopathy (OR 2.6, 95% CI 1.09-6.31, p-value 0.03) and number of diabetic complication from 1 to 2 (OR 2.5, 95% CI 1.04-6.19, p-value 0.04). The major challenges for diagnosis of depression that was identified are; lack of standardized depression screening tool, presence of well-organized referral psychiatric clinic, patients are not complaining the symptoms of depression, and physicians did not consider as a responsibility.

Conclusion and Recommendation: This study demonstrated that depression is a common co-morbid health problem in type 2 diabetic out-patients. In a setting where recognition, screening and treatment levels remain low, health care providers need to focus their efforts on diagnosing, referring and effectively treating type 2 diabetic outpatients with depression in order to deliver rights-based and client-centered services for people in real needs.

Keywords: Diabetes; Depression; Prevalence; Determinant Factors
Prevalence of Mental Distress and Associated Factors among Health Professionals Working in Jimma University Teaching Hospital, South West Ethiopia; A Cross-Sectional Study. Bikseyn Asrat, MSc, Department of Psychiatry, Aksum University; Esthetu Girma, MSc, Ass. Prof., Department of Health Education and Behavioral Science, Jimma University; Matiuros Soboka, BSc, MSc in Mental Health, Lecturer, College of Public Health and medical Sciences Jimma University; Kenfe Tesfaye, BSc, MSc in Mental Health, Lecturer, College of Public Health and Medical Sciences, Mekelle University.

Background: Mental distress is a syndrome of mental disturbance manifested by behavioral, psychological, and physiological reactions. It manifested with an anxiety-depressive feature which does not fulfill criteria for full blown mental disorder. Even though health professionals are at higher risks of mental disorders than the general population, only few studies done among them in Ethiopia.

Objective: To assess the prevalence of mental distress and associated factors among health professionals working in JUTH, south west Ethiopia.

Method: This study was conducted by using an institution based cross-sectional study design. All health professionals were involved in this study from various disciplines. Self-report questionnaire (SRQ-20) was used to detect mental distress. Other structured questionnaire related to socio-demographic characteristics, burnout, working area condition, and substance use habit were used to collect data. Data were entered and analyzed by using SPSS version 16. Multivariate logistic regression was used to identify the independent predictors of mental distress. In the final model, all variables with P-value <0.05 were declared to be significantly associated with mental distress.

Result: Out of the total participants (334), 29.9% (n=100) of them found to have mental distress. Prevalence of mental distress among women and men was found similar. Prevalence of mental distress among khat (44% vs 26%), tobacco and alcohol user health professionals was found higher compared with non-users. Mental distress was 4.47 times higher among participants with high burnout score (AOR=4.47, 95%CI=2.37-8.44). Additionally, the likelihood of developing mental distress among physically and verbally abused staffs was 2.34 times higher than their counterparts. Also it was more than two times higher among health professionals reported poor prospect of promotion than those who reported good prospect of promotion.

Conclusion: High prevalence of mental distress was found among health professionals. Identified association of mental distress with work related factors needs for immediate and far-reaching interventions in promoting health professionals by incentives, trainings and educational opportunities. JUTH also shall to work hard in prevention of burnout among these staffs and in preventing them from any kind of physical or verbal abuse by implementing rules and regulations.
Prevalence and Factors Affecting Depression and Suicide Ideation among University Students in Ethiopia: The Case of Haramaya University. Andualem Dereje, MPH, Department of Public Health, Haramaya University; Gezahgn Tesfaye, MPH, Department of Public Health, Haramaya University; Mitiku Teshome, MPH, Department of Public Health, Haramaya University.

Background: University students’ mental health affects not only their educational achievements, but also their professional future. Depression and other mental health disorders are a significant public health problem on college campuses and suicide is a leading cause of death in college age students. Identification of the magnitude and associated risk factors for depression and suicide has important implications for how to prevent and respond to this population; however, few studies have been performed on this topic in this age group.

Objective: The purpose of this study was to assess the prevalence and determinants of depression and suicide ideation among Haramaya University students.

Methods: A cross-sectional survey was carried out using Beck Depression Inventory (BDI) and Beck Scale for Suicide (BSS). The total sample size was 1040 and students were selected using systematic sampling after stratifying them by campus and year of study. Logistic regression was used to estimate associations between socio-demographic variables, depression and suicidal behaviour and to control for confounders.

Result: In this study the prevalence of depressive symptoms were 26.8% of which 9.7% was borderline depression, 11.7% was moderate depression, 4.3% was severe depression and 1.1% of extreme depression. The overall prevalence suicidal ideation among the students was 20.2% with BSS score higher or equal to six. Being depressed had strong association with suicide ideation [AOR (95% CI) =7.90 (5.48, 11.38)]. The odds of suicide ideation increases with those students smoking cigarette and ever using illicit drugs with [AOR (95% CI) =2.24 (1.31, 3.81)] and [AOR (95% CI) =2.22 (1.29, 3.82)] respectively.

Conclusion: The overall prevalence of depression and suicide ideation among university students is high. The result also showed that tobacco and illicit substance use are associated with depression and suicidal ideation. Depression among university students demands special attention, emergency preventive measures and targeted IEC activity.
Prevalence and Associated Factors of Maternal Postnatal Depression in Loma District, Dawuro Zone, Southern Nations and Nationalities People Region, South West Ethiopia, Community Based Cross-Sectional. Bassa Betela, B.Sc in Public Health; Tizdach Alemu, B.Sc, MPH/RH, College of Public Health and Medical Sciences Department of Population and Family Health, Jimma University.

Background: Maternal Post partum depression (PPD), also known as postnatal depression (PND) is a type of depression that affects some women after having a baby. Typically it develops within four to six weeks after giving birth, but sometimes takes several months to appear. Usually there is no clear reason for the depression.

Objective: The objective of this study was to assess prevalence and associated factors of Maternal postnatal depression within a year of child birth in the Loma district, Dawuro zone, Southern Nations, Nationalities, and Peoples Region.

Methods: A community-based cross-sectional study was conducted on randomly selected 441 postnatal women from April 8-15, 2014. Data were collected by face to face interview by using semi structured questionnaire. Woman who has scored greater than or equal to 3 for WHO Self reporting questionnaire was considered as having postnatal depression. To identify independent predictors of postnatal depression, multivariate logistic regression was used.

Results: A total of 441 postnatal mothers were screened for PPD by using WHO SRQ 20. Ninety five mothers scored >=3 points corresponding to a prevalence of possible PPD at 21.5% (95/441). In multivariate analysis postnatal women whose husband has polygamy marriage were 67% more likely to develop PND than whose husband has monogamy marriage type, AOR=0.3331; 95CI(0.174-0.638), a Postnatal woman whose husband uses substance were 65% more likely to develop PND than whose husband doesn’t use substance, AOR=1.653; 95CI(1.532-4.635), a woman who has history of IPV during the last 12 months were 1.852 times more likely to develop PND than non violated woman, AOR=1.852;95CI(1.113-3.08), food insecure women were 45% more likely to develop maternal PND than food secured women, AOR=0.551;95%CI(0.333-0.912), a women with unplanned last birth were 2.645times more likely to develop maternal PND than a women whose last pregnancy were planned AOR=2.645;95%CI (1.58-4.43), also a women whose last birth were for the first time were2.781 times more likely to develop PND than a women whose last delivery were two and above, AOR=2.781;95%CI(1.48-5.23).

Conclusion and Recommendation: PPD a common maternal health problem in Dawuro zone Loma District, thus strengthening of early screening, providing treatment and strengthening of referral system of postnatal mothers who had developed depression is important to reduce its prevalence. Woreda health office should Provide integrated preventive activities with stake holders especially Women youth and children affair office, and Agriculture office to reduce the risk factors to maternal postnatal depression.

Keywords: Postnatal depression, Intimate partner violence, Food insecurity, Loma district
Factors Associated with Utilization of Long Acting and Permanent Contraceptive Methods among Married Women of Reproductive Age in Nekemte Town, East Wollega Zone, Oromia Region, West Ethiopia.  

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Background: Long acting and permanent contraceptive methods are by far the most effective methods of contraception available. The current knowledge about the contraceptive prevalence rate is highly dependent on short-term family planning methods. Most of the previous studies are concentrated on examining factors that influence the utilization of short term contraceptive methods in Ethiopia. However, information on the level of utilization of the long term and permanent contraceptive methods and associated factors in the study areas is lacking. Thus, the objective of the present study emphasize on the determinant factors of long acting and permanent contraceptive methods utilization among married women of reproductive age groups in Western Ethiopia.

Method: A community-based cross-sectional study design was employed from April 10 to April 25, 2014 among married women in the reproductive age group in Western Ethiopia. Multi-stage sampling procedure was used to select 1003 study participants. Pre-tested and structured questionnaire was used to collect the data. The data were entered into a computer using Epi-info version 3.5.1 statistical program then exported to SPSS for Windows version 20 for analysis. Bivariate and multivariate logistic regression analysis was done to identify important predictors of long acting and permanent contraceptive methods at 95% confidence interval.

Result: The overall utilization of long acting and permanent contraceptive methods in this study was found to be 20%. The common method of long acting and permanent contraceptive used was implant (77.6%). Women’s education (AOR = 1.72, 95% CI = 1.02 – 3.05), women’s occupation (AOR = 2.01, 95% CI = 1.11 – 3.58), Number of live children (AOR = 2.42, 95% CI: 1.46- 4.02), Joint fertility related decision (AOR = 6.11, 95% CI: 2.29–16.30), having radio/TV (AOR = 2.31, 95% CI: 1.40 – 3.80) and discussion with health care provider about long acting and permanent contraceptive methods (AOR = 13.72, 95% CI: 8.37 – 22.47) showed positive significant association with utilization of long acting and permanent contraceptive methods.

Conclusion and Recommendation: Even though the finding of this study was in line with the target of federal minister of health of Ethiopia effort is needed to increase the utilization of long acting and permanent contraceptive methods through women empowerment, information provision and by encouraging couple discussion on family planning methods.

Keyword: Long acting, permanent methods, utilization, western Ethiopia.
Effect of Modern Family Planning Use on Nutritional Status of Women of Reproductive Age Group, at Tena District, Arsi Zone, Oromiya Region, Ethiopia: A Comparative Study.  

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Introduction: Women in developing countries over their reproductive life span conceive on average six to eight children. Short inter-pregnancy intervals or early pregnancies result in maternal depletion of energy and protein and micronutrients leading to a reduction in maternal nutritional status at conception and altered pregnancy outcomes. Extending birth spacing would presumably provide the women the time to replenish their nutrient stores.

Justification: Investing in Modern Family Planning can result in large savings to the health and education sectors, and help to achieve Millennium Development Goals especially goals 4 and 5. Most research on modern family planning utilization, maternal nutrition and health has focused on children’s benefit. Less data are available regarding nutritional status of women than on nutritional status of children.

Objectives: To Assess the Effect of Modern Family Planning (MFP) use on nutritional status of women in the reproductive age group (15-49 years) in Tena District, Arsi Zone Oromiya Region, Ethiopia in 2013.

Methodologies: A community based quantitative comparative cross-sectional study complemented by

Qualitative method was conducted at Tena Woreda, Arsi Zone Oromiya region from Jan –Feb, 2013. Three kebeles were selected randomly and prior to the study FP users for at least one year and non-users were identified before the actual data collection. A systematic random sampling procedure was employed to select the study subjects. Data were collected using a pre-tested structured questionnaires developed based on literatures to collect socio-demographic and other relevant family planning utilization and nutrition related information of the women. All anthropometric measurements (weight, height, and arm circumference) were taken by the trained diploma nurses based on standard procedure outlined in the Anthropometric Indicators measurement Guidelines. Data were entered using Epi info version 3.5.1 and analyzed SPSS version 17 software. For Qualitative, two FGDs were performed among purposively selected women in each group.

Result: The prevalence of underweight (p<0.001), low weight (p<0.001), and low MUAC (p<0.001) was significantly higher among women of non-users than ever family modern planning users.

Focus Group Discussants also magnified the nutritional status of the women between the two groups like the distance between the sky and earth. e.g., A 30 years FPM, “Yes there is a great difference like sky and earth ... e.g. to share a 2 birr cabbage for large family is difficult for that reason they always consume the diluted stemming pea (Yetebetebete shiro), and the food not served in good quality ..... Really the difference is like sky and earth.”

Conclusions: The main finding of this study was the prevalence of underweight was significantly higher among women of none modern Family Planning users than user women. Continuous supply of Modern Family Planning Methods with different range is important for improvement of women nutritional and health status.

NB. MUAC-Mid upper arm circumferences, FPM-Ever modern Family planning users.
Assessment of Informed Choice Practice among Contraceptive Users in Yeka Sub-City of Addis Ababa, Ethiopia. Abise Gujeta

Background: Promoting informed choice practice is given due emphasis on the national family planning guideline and is believed to improve client satisfaction and continuation of family planning service utilization. The study was aimed at assessing the prevalence of informed choice practice and associated factors.

Objective: The objective of this study was to assess informed choice practice among contraceptive users in Yeka Sub-City of Addis Ababa.

Methods: Facility based cross-sectional study design was employed from July to August, 2014. Women of reproductive age who were using modern contraceptive methods were interviewed using structured questionnaire. Bivariate and multivariate (Binary Logistic Regression) analysis were used to explain the association between the outcome and explanatory variables.

Results: A total of 638 women of reproductive age (15 – 49 years) using modern contraceptive methods were interviewed. The proportion of informed choice practice among contraceptive users of Yeka Sub-city was 44.4% (283). Factors like awareness on contraceptive choices, source of information, awareness on service delivery points, number of methods discussed during counseling session, and experience in contraceptive use were significantly associated with informed choice practice after controlling all other factors.

Conclusion: Awareness of women on contraceptive services is fundamental for informed choice practice. Therefore family planning programs should focus on strategies to improve the awareness level of women on contraceptive choices.
Ethiopian Family Planning Demand to Achieve Replacement Fertility By 2035: Using Famplan Module Projection. Yeshalem Mulugeta, MPH, School of public health, Bahir Dar University; Zelalem Birhann, MSc, School of Public Health, Gondar University.

Background: Rapid population growth has impact on economic growth, education, health, food supply, housing and environment. Family planning programmes often significantly affect population growth. In Ethiopia, evidence of total fertility decline was observed over the past two decades. This encouraging result was due to significant increase in use of modern family planning methods. The rapid rise in the contraceptive prevalence rate (CPR) and drop in the total fertility rate (TFR) during the past two decades showed what is possible when government, donors, and civil society work together to achieve a common goal. Therefore, family planning demand projection will be an important tool for policy makers, and planners, who need to know about demand of different services by estimate the service and resource requirements to meet a family planning goal.

Objective: To assess and project family planning demand to achieve replacement level by 2035 in Ethiopia

Methods and assumptions: The analysis was performed using SPECRTUM suite 4 model developed by Health Policy Project. Data for the current analysis obtained from different literatures. The goal of reaching replacement level (TFR=2.1) by 2035 was considered for the projection. Those contraceptive methods that are available in Ethiopia are considered in the input. Results are presented using graphs. Outputs for infant mortality rate, under five mortality rate, annual growth rate, total fertility rate, contraceptive prevalence rate, total number of contraceptive users, and total number of acceptors were presented in a yearly base.

Result: In this projection total fertility rate (TFR), infant mortality rate (IMR) and under 5 mortality rate (USMR) was declined gradually. Contraceptive prevalence rate (CPR), contraceptive acceptors and need of contraceptive increased gradually from 2011 to 2035.

Conclusion and Recommendation: The projection indicated a decline in fertility. Persistent decline in fertility results improvement of maternal, child and infant survival. To realize such reductions, It is essential to have political will, government commitment, generous donors support, and civil society work together to achieve a common goal of fertility reduction to replacement level by 2035.
Prevalence of *Neisseria gonorrhoea* and Antimicrobial Susceptibility Patterns among symptomatic Women Attending Gynecology Outpatient Department in Hawassa Referral Hospital, Hawassa, Ethiopia. *Mengistu Hailemariam, Tariku Lambiyo, Hawassa University, College of Medicine and Health sciences, Department of Medical Laboratory Sciences*

**Introduction:** gonorrhoeae, a sexually transmitted disease caused by Neisseria gonorrhoea for which humans are the only natural host. The causative organism is highly adapted to the genital tract and often causing asymptomatic and undetected infection in females in which Acquisition of gonococcal infection late in pregnancy can adversely affect labor and delivery as well as the well-being of the fetus.

**Objectives:** The aims of this study were to determine the prevalence and drug susceptibility pattern of Neisseria gonorrhoea among symptomatic women in Hawassa Referral Hospital.

**Methods:** A prospective cross-sectional study was conducted from December 1 2010 to February 30, 2011 at Hawassa Referral Hospital. All women who visited gynecology outpatient department with suspected gonococcal infection were included. Endocervical swab was collected by the attending physician. The presence of gonorrhea was confirmed by culture, gram staining and biochemical tests. Antimicrobial sensitivity test was performed using disc diffusion method and the result was interpreted accordingly.

**Results:** Of the total 215 patients examined, 11 (5.1%) were confirmed to have gonococcal infection. The identified organism had low level susceptibility to quinolones (ciprofloxacin 55%, ofloxacin 64% & lomefloxacin 64%).

**Conclusion and Recommendation:** Despite low rates of gonorrhea infection, it is important to focus on high-risk populations (reproductive age group) because of the great physical and emotional costs of the disease. A high resistance for quinolones, the commonly used antibiotics was observed for this laboratory-based diagnosis is recommended.

**Keywords:** Neisseria gonorrhoea, drug susceptibility, symptomatic women, Southern Ethiopia.
The Experience of Mekelle University STI Confidential Clinic on Provision of Promotive, Preventive and Curative Intervention for Commercial Sex Workers. Tesfay Gehregzabher Gebrehiwot, MPH, PhD fellow, Mekelle University; Yemane Asbel, MPH, PhD fellow; Mihretu Beleyneh, MPH; Solomon G/Mariam, MD, MSc in Nutrition; Zerihun Abebe, MD, Dermatovenerologist; Eyoel Birhan, MPH; Eduardo Sabero, Bsc in Public Health; Neway Hurny, MD, Masters in Epidemiology; Afework Mekubatu, MD, MPH; Alemayehu Mekonnen, MD, MPH.

Introduction: STIs in Ethiopia have become a more complex issue in recent years and reveal many characteristics of risk behavior. Evidence suggests that the presence of untreated sexual transmitted infections (STIs) increases the chance of HIV transmission during unprotected sex. Mekelle University opened a confidential sex workers clinic in 2010. The clinic is located at the center of the city; slum area hub of commercial sex workers (CSWs) workplace; CSWs are reached through trained peer educators (CSWs) who refer their peers to the confidential sex workers clinic. The clinic is open during the time which is convenient to CSWs.

Objectives: The purpose of the study is to indicate the output of the services and determine the magnitude of STI/HIV cases among the CSWs visiting the clinic.

Methods: Data was obtained from a register of CSWs that was recorded for purpose of service provision at Mekelle confidential sex workers STI clinic during the period from May 2010 – August 2011. CSWs are screened for STIs, provided condoms and offered counseling and testing services for HIV and linked to ART services at the clinic if the test result is positive.

Results: A total of 891 female CSWs were examined and screened for STI among whom 302 (33.9%) were diagnosed and treated for STI. The STI cases manifested with one of the three STI syndromes are 122, of which, vaginal discharge 54 (44.2%), Genital ulcer 56 (45.9%) and lower abdominal pain 12 (9.8%). Moreover, 180 of the STI cases were tested for syphilis with VDRL, 36/302 (11.9%) tested positive for active infection. The age group of 20-29 years bears the highest frequency of STI 157/302 (51.98%). Of those provided PIHCT service 333/598 (55.7%) agreed and tested and 48 (14.4%) were reactive for HIV test and referred for ART service.

Conclusions &Recommendations: CSWs who visited the confidential sex workers clinic are at increased risk of STIs (33.9%) and HIV (14.4%). Programs targeting commercial sex workers needs to be strengthened and scaled up in urban towns where commercial sex work is common. Since sex workers are core transmitters, this program will have an impact in the prevention and control of STI/HIV in the general population.
The Dynamics of Traditional Medicines Sold by Vendors in the Merkato, Addis Ababa: Inventory and Aspects of their Utilization and Trade

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Background: A considerable number of traditional medicines are sold by vendors in the Merkato, the largest open market in Ethiopia. The vendors sell plant-based medicines and related commodities for various ailments and other purposes.

Objectives: The aim of this study was to obtain information on traditional medicinal plants, minerals incense and medicinal substances products sold by vendors and purchased by clients in the Merkato. Assessment was also made to inventory the plant based medicines, type of ailments employed for, handling of remedies, affordability including the collection/origins of the medicinal products, trade and sustainability.

Methods: Two questionnaires and a direct observation guide were used to obtain information from 44 vendors and 47 of their customers.

Results. Plant materials of 45 plant species, 37 of which could be scientifically identified, and four minerals were found to be sold by the vendors for the treatment and prevention of various infectious and non-infectious diseases and magico-religious illnesses. The most frequently sold medicinal plant products were resins from Boswellia spp. and Commiphora spp. (etan), Echinops kebericho (kebericho), Ruta chalepensis (tena adem), Rhamnus abyssinicus (yeseb mebesho), Ocimum lamifolium (damakati), Tanninera abyssinica (dingetegna), and Silene macrostyla (wuget), in that order. Comparison of the results with those of a 1973 study reveals a decline in the number of vendors and mean number of medicines sold per vendor, particularly the tannic acids, continued high use of the major general medicines, and the sale of 13 plant species and one mineral that were not reported in 1973. These changes are due to increasing commercialization of medicines, the movement of some vendors to other markets, greater acceptance of some pharmaceutical drugs, and apparently changes in the epidemiology of diseases. The sanitation and handling of medicines observed among vendors was poor, with possibly undesirable health effects for the clients. The utilization and preparation of medicines recommended by vendors and described by clients were fairly consistent, indicating deeply engrained practices and traditions.

Conclusion: Although the number of vendors in the Merkato and the medicines they sell have declined during the last four decades, demand for them remains high in the population of Addis Ababa. The dosages of the traditional medicines recommended by the vendors, poor handling of the remedies in the absence of hygiene and lack of scientific studies data in some of the remedies employed or dispensed by vendors will compromise seriously the safety and may constitute health risks for the consumers of the remedies. The findings of the study indicate the need for giving more attention in strengthening the ongoing research efforts on the traditionally employed medicinal plants through scientific validation for their efficacy, safety and quality besides awareness creation and monitoring the vendors’ practices. Moreover, this study also indicates that the massive and uncontrolled harvesting and marketing of wild plants for the rapidly growing urban markets will threaten the survival of several plant species.

Keywords: Traditional medicine, medicinal plant vendors, utilization, sustainability, temporal changes in uses.
Prevalence of Self Medication and Associated Factors in Gondar City, Northwest Ethiopia. Yohannes Andargachew Delelegn, Getahun Aires Alemie, Alemayehu Shimeka Teferra.

**Introduction:** WHO acknowledges the existence of a valid role of self-medication. However, there is potential misuse and abuse of self medication. Studies on factors influencing the use of self medication should be of interest to public health practitioners due to its possible deleterious effects. However, in Ethiopia there is a paucity of community based study which tried to assess level of self medication and the factors associated with it.

**Objectives:** The aim of this study was to determine the prevalence and associated factors of self medication among adult ill individuals in Gondar, Ethiopia, 2014.

**Methods:** Community based cross-sectional study design was conducted in Gondar town in March 2014. Self medication was defined as the use of traditional medicines (homemade remedy and treatment from traditional healers) and/or modern drugs without consulting qualified health practitioners. The use of diet, holy water ("Tsebel"), other non-pharmacological approaches such as massage, exercises, and psychotherapy was not considered as self-medication. The study included 1052 ill adult individuals in the past two weeks prior to the study. The study participants were selected by using multi stage sampling technique. Data were collected using structural and pretested questionnaires. Multiple logistic regression analyses were done to identify factors associated with self medication. Finally, the results were presented with appropriate using text, tables and graph as well as adjusted odd ratio (AOR) and 95% confidence interval were used to assess the association of the determinants factors to the outcome variable.

**Results:** The prevalence of self-medication among ill adult individuals in Gondar city two weeks prior to the study was 34.9% (95% CI 31.9, 37.9). Age group of 24-44, educational status, marital status, employment status, and duration of illness, severity of the illness, presence of chronic disease and good perception of general health status were found to be significantly associated with the practice of self-medication.

**Conclusion and Recommendation:** The prevalence of self medication in Gondar town was high particularly among those, aged 25 – 44 years old, divorced, widowed, house wives, longer duration of illness, presence of chronic illness, perceived low severity of illness, and perceived good general health status. It is important to work on behavior modification programs directed at reducing the practice of self-medication.

**Keywords:** Self medication, associated factors, Gondar City, Ethiopia
Studies on the Antidiarrheal Property of Ethiopian Medicinal Plants. Negern Gemeda MSc, T
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Background: Diarrhea is characterized by increased frequency of bowel movement, wet stool and abdominal pain. Diarrheal diseases are a global problem which accounts for more than 5-8 million deaths each year in infant and children below 5 years old especially in developing countries were Ethiopia is not exceptional. To date, it has been known that diarrheal diseases are endemic to areas with poor socio economic conditions. In many parts of the world, diarrhea is routinely treated with antibiotics, regardless of the underlying cause. However, still affected there are higher figure of morbidity and mortality due to diarrheal diseases in the world because the increased prevalence of drug resistant pathogens causing diarrhea. So in search of for new novel drug, natural product especially medicinal herb captured the inspiration of many researchers as they are believed to have a complex mixture of therapeutic chemical constituents. The present study therefore, aimed at investigating antidiarrheal activity of most promising medicinal plants against non-infectious diarrhea.

Materials and methods: Using the minimum inhibitory concentration (MIC) method, 12 Ethiopian medicinal plants were tested against pathogens associated with diarrhoea (Shigella species, Salmonella typhi, Escherichia coli and Acinetobacter species). Two highly effective medicinal plants were subjected to Bioassay guided fractionation and isolation using Bioautography methods. In this study cascar oil induced diarrhea and charcoal mcal test were used on male wistar rats and albino mice, respectively.

Results: Methanolic extracts of Alliziga gummifera were active against the tested diarrhea causing organisms viz: Shigella species (MIC of 0.25 mg/mL), Escherichia coli (MIC of 0.25 mg/mL), Salmonella typhi (MIC of 0.5 mg/mL) and Acinetobacter species (MIC of 0.25 mg/mL). Our bioautography results indicated that the Methanolic extracts of A. gummifera had high number bioactive constituents responsible for their antibacterial potentials. High and low doses of A. gummifera and S. guineense were offered significant dose dependent protection in diarrheal conditions. Both plant extract significantly reduced watery diarrhea and intestinal contents conditions. The extracts significantly (p<0.05) reduced the frequency of defaecation and as well decreased gastrointestinal motility. In an acute toxicity study in Sprague-Dawley rats, the median lethal dose (LD50) of A. gummifera was greater than 3000 mg/kg, and no pathological changes were noticed in macroscopic examination by necropsy of rats treated with Methanolic extract of A. gummifera. Thus, the plant extract may be safely used as a as an anti-diarrheal agent.

Conclusions: The traditional use of Alliziga gummifera for the treatment of diarrheal disease in Ethiopian community appears to have a scientific basis.
Medicinal Plants of the Shinasha: Opportunities and Challenges. Abiyu Asmamaw1, PhD Candidate in Folklore; Fekade Areg2, PhD, Mimiute Gidey3, PhD 'Addis Ababa University, 2College of Humanities, Language Studies, Journalism and Communication, Addis Ababa University 3Aklilu Lemma Institute of Pathobiology, Addis Ababa University.

Introduction: Since time immemorial, Traditional Medicine (TM) has been in use in different parts of the world. Continents like Africa and other developing countries being under the influence of problems ranging from poverty to high level of disease burden are well known for using TM. As to the WHO report, more than 80% of the population of underdeveloped countries, including Ethiopia, is using TM for the Primary Health Care purpose. Despite this fact, there is a lack of research on the area; and still the wisdom associated with TM is being lost as the healers who possess the knowledge are dying without teaching or passing the medicinal knowledge. Therefore, the main purpose of this study was to discover and document the traditional knowledge associated with TM. With this, the study had tried to find out the opportunities and challenges in the usage of TM plants in the Shinasha people of the Benishangul Gumuz Regional State in the North Western Ethiopia.

Methodology: Extensive Interview, Focus Group Discussion and Observation techniques were applied on purposively selected healers, clients and the public. All the techniques were administered by the researcher himself from November 2013–June 2014. Data gathered were transcribed, translated, organized, coded and analyzed using the procedures of the Grounded Theory.

Findings: The people of Shinasha preferred TM which is mostly composed of medicinal plants to biomedical (BM) due to the entrenched belief in the lore that have sustained through generations, the trustworthiness the communities have in the traditional healers, the holistic approach of the treatment that unifies the patient’s physical and psychosocial aspects of health needs and when it loses hope by the BM. A sum of 20 medicinal plant specimens were photographed, collected, pressed and labeled for further investigation for the Aklilu Lemma Institute of Pathobiology, AAU. Data analysis showed that the medicinal plants used to treat Asthma, cough, cancer, snake bite, goiter, TB, blood pressure, typhoid fever, hepatitis and various other chronic diseases. The plant parts that are used for treatment purposes are the fruit, leaf, root, bark and others. The way of application of these plant remedies are dry bath, drinking, sniffed, chewing, creamed, washing, tied, eaten, and tooth brush. Though TM is of paramount importance for the local people, it is endangered by factors like deforestation, climatic change, urbanization and lack of interest of new age generations and modern life style. Hence, the researcher urges the need for researching and documenting TM plants and the indigenous knowledge associated with it before they disappear.

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Knowledge and Beliefs on Antimicrobial Resistance among Physicians and Nurses in hospitals in Amhara Region, Ethiopia. Bayeb Abera, BSc, MSc, Associate professor; Mulugeta Kibret and Wondemagen Mulu. 1Department of Microbiology, Parasitology and Immunology, College of Medicine and Health Sciences, Bahir Dar University; 2 Department of Biology, Science College, Bahir Dar University, , Bahir Dar, Ethiopia.

Background: Antimicrobial resistance (AMR) is a major global public health problem both in hospital and community acquired infections. The treatments of common and serious bacterial infections are compromised by antimicrobial resistant bacteria. AMR has multiple consequences such as prolonged morbidity, hospital stay and greater risk of mortality.

Objectives: The present study assessed the knowledge and beliefs on AMR among physicians and nurses.

Methods: A cross-sectional study using a self-administered questionnaire was conducted among physicians and nurse in 13 hospitals in Amhara National Regional State in June 2013.

Results: A total of 385 participants (175 physicians and 210 nurses) took part in the study. Sixty five percent of physicians and 98% of nurses replied that they need training on antimicrobial stewardship. Only 48% of physicians and 22.8% of nurses had exposures for local antibiogram data. Overall, 278 (72.2%) of participants were knowledgeable about AMR. Majority of participants agreed or strongly agreed AMR as worldwide and national problem but few considered AMR as problem in their own hospitals. The two most important factors mentioned for AMR development were patients' poor adherence to prescribed antimicrobials (86%) and overuse of antibiotics (80.5%). The most leading local factors identified for AMR development were: self-antibiotic prescription (53.5%), lack of access to local antibiogram data (12.3%) and prescriber poor awareness about AMR (9.2%). Factors perceived for Excessive antibiotic prescriptions were: patient drive (56%), treatment failure (79%), unknown febrile illnesses (39.7%) and upper respiratory tract infections (33.4%).

Conclusion: Majority of physicians and nurses lack up to-date knowledge on AMR. Unavailability of local antibiogram data, self-prescription by patients and poor awareness on AMR are areas of interventions for prevention and control of AMR.

Keywords: Antimicrobial resistance, Knowledge, Belief, Ethiopia.
Assessment of Drug Hoarding and Self-Medication Practice in South West Ethiopia.  Seid Mutsa Ahmed, B.Pharm, MSc.; Fitosum Negash, B.Pharm**. *Jimma University, Department of Pharmacy, Jimma, Ethiopia **Addis Ababa Health Bureau, Bole Sub-City, Meri Health Center, Addis Ababa, Ethiopia

Introduction: drug hoarding and self-treatment of common illnesses by lay people is common in economically deprived countries. In all areas where self-medication practices have been studied, they have been typified by the use of inappropriate drugs and dosages, which leads to increasing resistance to drugs, and this has led to a growing concern that in the future no effective remedies will be available.

Purpose: This study aimed to assess drug hoarding and self-medication practice in Jimma town, South Western Ethiopia.

Method: A cross-sectional assessment was conducted using semi-structured interviewer-administered questionnaire from April 20-30, 2011.

Result: From the total household studied, 209(51.4%) households had at least one hoarded drug in their home. From those 209 households which hoarded drugs, only 181 households were willing to show hoarded drugs. Among these 36 different types of drugs were found hoarded with a range of 1–6 medicines per household. Paracetamol 60(28.71%), was the most common individual hoarded drug. Moreover, 289 (71%) of the households practiced self-medication and the most commonly drug used for self medication was paracetamol 168(59.29%). Respondents with technical education level (P=0.004; AOR=2.976, CI=1.423, 6.224) were more likely to hoard drugs. Respondents with informal education level (P=0.019; AOR=0.214, CI=0.059, 0.774) were less likely to practice self-medication. Whereas those which are merchants (P=0.029, AOR=3.420, CI= 1.135, 10.308) were found more likely to practice self medication.

Conclusion: Drug hoarding and self-medication are very common practices in Jimma town. Given the growing global resistance for antibiotic and documented health issues related to inappropriate use of such drugs, this finding has major public health policy implications for Ethiopia.

Keywords: Modern drug, Drug hoarding, Self medication, Drug resistance, Jimma, South West Ethiopia.
Throat Carriage Rate and Antibiotic Susceptibility Pattern of Beta-Hemolytic Streptococci and Gram Negative Oral Commensals in Children with Rheumatic Heart Disease on Secondary Antibiotic Prophylaxis in Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia. Nigez Zageye

**Background:** Rheumatic fever and rheumatic heart disease remain significant causes of cardiovascular diseases in Ethiopian children.

**Objectives:** This study was conducted to determine the throat carriage rate and antibiotic susceptibility pattern of beta-hemolytic Streptococci and gram negative oral commensal bacteria, such as Neisseria species in order to have a better understanding of their composition and dynamics in children having rheumatic heart disease who received ongoing monthly Penicillin G prophylaxis.

**Methods:** Throat swab from 234 children who had rheumatic heart disease and received on-going secondary prophylaxis was collected and inoculated onto Sheep blood and Modified Thayer-Martin agar plates. The bacterial strains were analyzed by conventional methods as well as advanced mass spectrometry and molecular methods. Antimicrobial susceptibility testing of streptococci was performed by Kirby Bauer disc diffusion method. ASO titer determination was also done for infection or colonization differentiation.

**Results:** Out of 234 participants, 38.03% were referred for possible surgical intervention but only three participants received this treatment. Throat carriage rate of beta-hemolytic streptococci was 23.93% (56/234). Of these, 4 were *S. pyogenes*. Streptococcus dysgalactiae subsp. equisimilis possessing Lancefield group A, C and G were isolated. Six different *emm* gene types with one newly discovered subtype (*stG661a.f*) were identified. The Streptococcal glycosyltransferase in strain *emm* 68.2 (multidrug resistant strain) had N-linked glycosylation carrying a unique HexNAc-deoxyhexose; a novel post-translational modification not previously recognized or studied which indicates it is not only M protein responsible for rheumatic fever disease. All beta-hemolytic Streptococci were susceptible to penicillin except *S. agalactiae*. Erythromycin and tetracycline resistant *S. pyogenes* were isolated. Among 234 participants, 29.49% (69) was positive to ASO. Of the positives, 66.67% (46/69) showed increased ASO titer (ASO > 200 units/µL) and the rest 33.33% (23/69) was ASO =200 units/µL. Children who received antibiotic prophylaxis within two weeks showed significantly lower beta-hemolytic streptococcal throat carriage than 4 weeks of injection (p = 0.004). The isolation rate of gram negative oropharyngeal commensals was 55.1% (129/234). Throat carrier rate of *N. meningitidis*, *N. lactamica*, *M. catarrhalis*, *K. demutiricanus* and *K. kingae* were 4.27%, 4.27%, 19.66%, 15.81% and 2.56% respectively.

**Conclusion:** Characterization of carrier strains and increased ASO titer in rheumatic heart disease is likely to elucidate the significance and mechanisms for carriage and drug resistance during on-going penicillin G monthly prophylaxis. The throat carriage rate of gram negative commensals seems affected by on-going penicillin G prophylaxis.

**Recommendation:** The current schedule benzathine penicillin prophylaxis injection should be revised (changing schedule of benzathine penicillin G prophylaxis from four to two weeks). Treatment intervention has to be established to provide services for those who need repair or replacement of their damaged heart valves. Penicillin failure to clear pathogenic streptococci needs further investigations.

**Keywords:** Group A streptococcus, beta-hemolytic streptococci, rheumatic heart disease, rheumatic fever, antibiotic prophylaxis, susceptibility pattern, *emm* type, protein profile, gram negative oral commensal, Ethiopia
Hematological Outcomes of Children Before and After Highly Active Anti-Retroviral Therapy at Zewditu Memorial Hospital. Abebe Hahteselassie, Ethiopian Public Health Institute (EPHI); Ahmed Ali; Migamaw Birhaneselassie; Gizeachew Tadesse.

Background: In human immunodeficiency virus (HIV) infected individuals immunologic and hematologic abnormalities are common and they increase the risk of morbidity and mortality. Evaluating the hematological and immunological parameters in HIV/ AIDS patients on highly active anti-retroviral therapy (HAART) is important in order to monitor the body responses to the drugs. Therefore, assessment of hematological and immunological changes in HIV/ AIDS patients on HAART is of a paramount importance.

Objective: The main objective of this study was to assess immunologic and hematologic profile of HIV infected children on highly active antiretroviral therapy in Zewditu Memorial Hospital.

Methodology: A retrospective cohort study was conducted among 300 HIV infected children who received HAART between September 2008 and March 2013 at ART clinic of Zewditu Memorial Hospital in Addis Ababa, Ethiopia. Data were collected using structured questionnaire that included variables related to socio-demographic characteristics, immunohematological profiles and clinical conditions of the study individuals. Data was analyzed using SPSS for Windows version 16.0 software.

Result: The mean level of hemoglobin, thrombocyte count and CD4 count showed statistically significant increment from the baseline (p-value <0.05). At baseline the prevalence of anemia, thrombocytopenia and neutropenia among the 300 study children was 147(49%), 46 (15.3%) and 28 (9.3%), respectively. After six months of HAART, the prevalence of anemia, thrombocytopenia and neutropenia was63 (21%), 25 (8.3%) and 40(13.3%), respectively. Of the study children 111(37%) and 30(10.7%) had severe immune suppression (CD4 count below 200 ) before initiation of HAART and six months after HAART respectively

Conclusion: Our study indicated that the mean hemoglobin, thrombocyte count and CD4 count increased significantly in children who received HAART, but anemia, neutropenia and thrombocytopenia were common before and after treatment among the study subjects. Hence, we recommend the need for regular monitoring and evaluation of immunological and hematological values to enhance targeted interventions for encountered abnormalities.
Postoperative Wound Infection: Bacterial Etiologies and their Susceptibility Patterns in Hiwot Fana Specialized University Hospital and Jugala, Hospital, Harar, Ethiopia. Deju Abate, Daimel Asrat, Yimtubegnash W/amanael, Mulat Asfaw, Gigelehew Andualem 1Department of Medical Laboratory Sciences, College of Health and Medical sciences, Haramaya University 2Department of Microbiology, Immunology and Parasitology, College of Health sciences, Addis Ababa University 1Department of Surgery, School of Medicine, College of Health and Medical sciences, Haramaya University.

Background: Surgical wound infection is a common postoperative complication which causes significant morbidity and mortality, prolongs hospital stay, and adds between 10% and 20% to hospital costs. It remains a major cause of hospital-acquired infections and rates are increasing globally even in hospitals with most modern facilities and standard protocols of preoperative preparation and antibiotic prophylaxis. Moreover, in developing countries where resources are limited, even basic life-saving operations, such as appendectomies and cesarean sections, are associated with high infection rates and mortality.

Objective: The aim of this study was to isolate bacterial pathogens from patients with Postoperative wound infection and assess Antimicrobial resistance Patterns of the isolates in Hiwot Fana Specialized University Hospital and Jugala Hospital.

Methods: A cross-sectional study was conducted on 214 postoperative patients visited Hiwot fana specialized university hospital and Jugala hospital from February 20 to May 21, 2013. A structured questionnaire was used for collection of data on socio-demographic characteristics and associated risk factors. The clinical diagnosis was made by surgeons. Wound specimens were collected, processed and cultured using the standard bacteriological methods. Isolated organisms were tested for pattern of antimicrobial susceptibility using the standard disk diffusion method. The data were entered in to a computer using epi-data 3.1 and analyzed using SPSS Version-16 software.

Results: Two hundred fourteen patients admitted to surgical, gynecology and obstetrics ward were studied for prevalence of postoperative wound infections. The prevalence of aerobic bacteria was 11.7%, and majority of the isolates (60.5%) were Gram-negative organisms. The most frequently isolated bacteria was S. aureus accounted for 11 (33.3%) followed by Proteus spp 8(24.2%) and Klebsiella spp 5 (15.2%). All bacterial isolates were resistant to at least one antibiotic, and 88% were multiple drugs resistant.

Conclusion and Recommendation: The prevalence of postoperative wound infection at Hiwot fana specialized University Hospitals and Jugala hospital was 11.7%. Most of the isolates were gram negative bacteria showing high level of resistance to antimicrobial agents. Empirical treatment to nosocomial infections may not be effective. Therefore, treatment should be based on the result of culture and sensitivity.

Keywords: Aerobic bacteria, post-surgical wound infection, antimicrobial susceptibility, Hiwot Fana, Jugula, Ethiopia.
Assessment of Liver Function Tests and Associated Factors among Diabetic Patients Attending Chronic Illness Clinic of Jimma University Specialized Hospital, South West Ethiopia. Shiferaw Bekele (BSi, MSc), Zeleke Mekonnen (MSc, PhD), Wagaolu Chemke (BSi, MSc), Jimma University College of public health and medical sciences, Department of medical laboratory sciences and pathology

Background: There is a high prevalence of one or more abnormal liver function tests among diabetic patients. Patients having metabolic disorder like diabetes are more likely susceptible to liver diseases such as hepatitis, cirrhosis, alcoholic and non-alcoholic fatty liver disease. There is a high prevalence of one or more abnormal liver function tests among diabetic patients.

Objective: To assess liver function tests and associated factors among diabetic patients attending chronic illness clinic of Jimma University Specialized Hospital.

Methods: An institution-based cross sectional study was conducted in Jimma University Specialized Hospital from 26 June-16 July 2014, three hundred seventy six diabetic patients were participated in the study. Sociodemographic and related data were collected using structured questionnaire. Five milliliter venous blood was collected from each study participant. Blood samples were used for laboratory liver function testing parameters and hepatitis C virus antibody detection. HumaStar80 automated clinical chemistry analyzer was used for determination of liver function tests (ALT, AST, ALP, GGT, total bilirubin, direct bilirubin, and albumin). EUGENE® anti-HCV rapid test was used to determine anti-hepatitis C virus antibody detection. Descriptive statistics and bi-variate and multivariate logistic regression were performed using SPSS-V20 software. P value less than 0.05 was used as statistically significant.

Result: Greater than half of the study participants (57.7%) had one or more abnormal liver function tests. Twenty-three point nine (23.9%) of diabetic patients had AST abnormality, 20.5% of them had both ALT and ALP abnormal liver function tests, 12.0%, 10.1%, 9.3% and 3.2% of diabetic patients had abnormal liver function tests for total bilirubin, albumin, direct bilirubin and GGT respectively. One point six (1.6%) of diabetic patients were positive for hepatitis C virus and 16.0% of them had abnormal test values for AST, ALT and ALP. Bivariate and multivariate logistic regression models were performed to identify the association between dependent and independent variables and only ALT abnormal concentration had statistically significant association with increasing BMI (P < 0.05).

Conclusion and Recommendation: In present study, high prevalence of one or more abnormal liver function tests were indicated among diabetic patients with different duration of diabetes. To identify whether the abnormality of liver function tests come after the onset of diabetes or not, early liver function test and associated factors assessment of diabetic patients during early onset of diabetes and then follow up is necessary.
Therapeutic Efficacy and Safety of Artemether-Lumefantrine (Coartem®) for the Treatment of Uncomplicated *Plasmodium falciparum* Malaria in Felege Selam Health Center, Pawe, Benishangul Gumuz, Ethiopia. Woldign Dessie¹, Gebre Mulugeta¹, Tedla Mindaye¹ and Moges Kassa² Department of Medical Laboratory Sciences, College of Health Sciences, Addis Ababa University ²Ethiopian Public Health Institute

**Background:** Malaria prevention and management in Ethiopia aims to reduce the overall burden of the disease. However, the trend of malaria changes over time and may lead to antimalarial drug resistance, which is a major public health problem and hinders the control of malaria. Thus, monitoring treatment failure of first line antimalarial drugs is very important since it can signal the appearance of anti-malarial drug resistance.

**Objective:** To assess the efficacy and safety of artemether-lumefantrine (Coartem®) for the treatment of uncomplicated *P. falciparum* infections in Felege Selam Health Center, Pawe, Benishangul Gumuz regional state, Ethiopia.

**Methods:** Antimalarial drug efficacy trial were conducted in Felege Selam health center, Pawe, Benishangul Gumuz regional state from October-December, 2013. Treatment outcome was assigned for a total of 92 patients out of 101 enrolled patients. The study subjects were consisted of patients with uncomplicated *P. falciparum* malaria attending the study health clinic who are aged > 6 months and fulfilled the inclusion criteria. Patients were treated with a 3-day, six-dose regimen of AL combination. Clinical and laboratory evaluation were monitored over a 28-day follow-up period to evaluate drug efficacy. Outcomes were classified based on WHO guidelines as early treatment failure (ETF), late clinical failure (LCF), late parasitological failure (LPF) and adequate clinical and parasitological response (ACPR). The data were analyzed by using SPSS, excel statistical software and Kaplan Meier survival analysis.

**Result:** The cure rate, ACPR was found to be high, 96.7%. Age-stratified data showed ACPR to be 92.9% for adults and 100% for under 5 children and 5-15 age groups. There was no ETF in all age groups. The parasite and fever clearance time were also rapid. The cure rate exceeded 93.9% (Polymerase chain reaction uncorrected) in each body weight group (P=0.338) with no indication that outcome differed between groups. There were also no clinically relevant differences in safety or tolerability between body weight groups.

**Conclusion:** The result showed that the six-dose regimen of AL is a good choice for managing uncomplicated *P. falciparum* malaria in all body weight groups of ≥ 5kg, with a high efficacy and a good tolerability in the study area. However, the efficacy and safety of AL needs to be carefully monitored periodically in sentinel sites representing different areas of the country.
Assessment of the Relationship Between Under-nutrition and Malaria in Preschool Children at Bahir Dar Special Zone, Ethiopia: a Comparative Cross-sectional Study.

Hamid Yimam, MPH; Jemal Hider, MD, MSc, CME, Asso. Professor.

**Background:** Malaria and under-nutrition are the two major causes of childhood mortality in sub-Saharan Africa. More than half of child mortality related to major infectious diseases is attributed at least in part to under nutrition. In Ethiopia both under nutrition and malaria are very important public health problem. Although the relationship of malnutrition and respiratory infection, diarrheal diseases is well studied, the relation with malaria is still controversial. The information that obtained in this study will substantiate the non-conclusive findings that will help to develop a better approach on prevention and management of under nutrition and malaria at individual as well as at community level.

**Objective:** To assess the relationship between under- nutrition and malaria in preschool children at Bahir Dar special zone, Ethiopia

**Methodology:** A cross sectional study that compared two groups (with confirmed malaria and without confirmed malaria) was conducted to assess the relationship between malaria and under-nutrition at Bahir Dar special zone. A total of 621 Samples was calculated based on sample size calculation for comparative cross sectional study design using EpiInfo Statcalc. Anthropometric measurements and clinical data were recorded by trained clinical nurses and blood film results were taken by laboratory technician in respective health centers. Stunting, wasting, and underweight of children were determined using the International Reference Population defined by the WHO using WHO Anthro software. Data were entered using EpiInfo version 3.5.4 and transformed to SPSS version 21 for cleaning and analysis.

**Result:** The prevalence rates of stunting, underweight and wasting were 50.3%, 34.2% and 12.1% among cases respectively. Stunting (COR = 1.51; 95%C.I. = 1.04 – 2.19), underweight (COR = 1.82; 95%C.I. = 1.21 – 2.72) and wasting (AOR = 2.44; 95%C.I. = 1.15 – 5.20) were significantly associated with confirmed cases of malaria. Other important predictors were place of residence (rural) (AOR = 2.35; 95%C.I. = 1.39 – 3.98), sex (male) (AOR = 1.88; 95%C.I. = 1.19 – 2.98), LLIN use (AOR = 0.20; 95%C.I. = 0.13 – 0.33), IRS (AOR = 0.26; 95%C.I. = 0.15 – 0.43) and educational status of the mother (above grade 12) (AOR = 0.30; 95%C.I. = 0.11 – 0.79).

**Conclusion and Recommendation:** the major contributor factors to malaria were wasting, stunting, underweight, rural residence, male sex, LLIN use, indoor residual spray and low educational status of the mother/caregiver. Therefore, governmental and non-governmental organizations need to consider integration of malaria control program with nutrition intervention.
Access to and Use Gaps of Insecticide -Treated Nets in Jimma Zone: Evidence from a Baseline Result of Pre-posttest School and Faith Based Malaria Education Program: Implication for Behavioral Change communication. Zeawde Birhanu (MPH), T.Lakew Abebe (MPH), J.Morankar Sudhakar (PhD), 2Guda Alemayehu (MPH) 1Department of Health Education and Behavioral Sciences, Jimma University, Ethiopia 2 USAID -Ethiopia, HIV/AIDS and Malaria program

Background: Despite tremendous efforts and commitment from government and key malaria partners, malaria continued to be one of the major health and socio-economic burden in Ethiopia. The government has planned to eliminate and achieve near zero malaria related death by 2015. However, the progress on key malaria prevention methods, mainly proper use of ITN is far behind expectations.

Objective: This article presented access to and use gaps of insecticide-treated nets in selected districts of Jimma zone, Oromia, Ethiopia with intention to appraise implication for behavioral change communication.

Methods: This analysis used data collected from 798 households to establish baseline indicators for pre-posttest school and faith based malaria education program being implemented in three districts of Jimma zone; namely Mana, Kersa and Gomma. The project is financed and supported by USAID-Ethiopia. This baseline data were collected from thirteen kebeles from December 2013 to January 2014 by trained data collectors and analyzed by SPSS 17.0. In order to calculate ITN ownership, access and user gaps, the recommendations developed in 2011 by Survey and Indicator Task Force of the Roll Back Malaria Monitoring and Evaluation Reference Group (MERG) was used. This calculation contains six ITN in dicators and helps to roll-out behavioral driven gaps.

Results: In this study a total of 4107 people were surveyed from 798 households. Overall, 70.9% (95%CI: 67.8%, 74.1%) of the sampled households had at least one ITN at the time of the survey (spatial coverage gap of 29.1%), and 63.0% (95%CI: 59.6, 66.3) of the households had enough ITN for every member of the household, assuming at least one ITN for every two people. When the analysis is restricted to households with any net, the ownership of at least one ITN for every two people was 88.9% (95%CI: 86.3, 91.4) with intra-household net gap of 11.1%. With respect to access to nets, 51.9 % (95%CI: 50.5, 53.5) of the population had access to ITN within the households, with overall mean access of 54.7% (95%CI: 51.9, 57.5). With respect to use, overall 38.4% (95%CI: 36.9%, 39.9%) of the studied individuals reported sleeping under ITN previous night with females more likely to sleep under net across all age groups. Applying the analysis to only those people who had access to the net, previous night ITN use was increased to 73.1% (95%CI: 71.2,74.9). This yields overall ratio of use to access of 70.2% implying that 29.8% of the population who had access to the net did not actually use which is due to behavioral failure. The magnitude of behavioral failure was found to be high among people in age group of 10-19 years. Among households with full ITN access, females (P=0.001, AOR=1.52; 95%CI: 1.25, 1.83) and: children age 0-4 years P=0.001; OAR= 2.28; 95%CI: 1.47,3.53) were more likely to use nets. However, in insufficient access leads to gender disparity where males were given priority in under five children. Conclusion and recommendations: ITN utilization was hampered by spatial coverage gap (ownership gap) and most importantly by behavioral driven gap as even those who had access did not actually use them. This call for well-designed and appropriate behavioral change communication interventions to deal with behavioral failure as first instance while improving access as second instance. Further, the finding calls for reconsideration of the traditional messaging approach which primarily focused on women and children also address specific needs and gaps by taking into account gender and age.

Keywords: Insecticide treated net, Net ownership, net coverage, ITN use, ITN access, Jimma

Background: Malaria is an entirely preventable and treatable mosquito-borne illness. It is one of the leading public health challenges in Ethiopia. The Federal Ministry of Ethiopia also launched a laboratory diagnosis by either RDT or Giemsa based microscopy to all suspected malaria cases at all levels health facility to impact on malaria control. However, several factors might affect the diagnosis of malaria both in RDTs and microscopic examinations. Therefore, the aim of this study was to assess RDT (SD BIOLINE) and Giemsa light microscopic diagnosis of malaria and review factors related in the performance of Giemsa microscopy.

Materials and Methods: A cross-sectional study design was conducted in eight high burden malaria districts of Amahara region from May 15-June 15, 2014. Districts were selected based on the high prevalence of malaria to get enough samples within the data collection period and again one health center with expected high case load from each woreda included in to the study. All suspected malaria cases which full fill the inclusion criteria included in the study. Considering the 9% overall prevalence of districts, sample size was determined to be 892 using Buderer’s formula. Finally we decided the sample size 1000 for increase the power and any wastage during laboratory procedures.

Results: A total of 1000 suspected cases of malaria were interviewed in ten health centers and from which 987 and 990 of them were tested for malaria parasite using RDT and Giemsa light microscopy respectively. The median age was 21 years old, and the age range was between one and 88 years old. Males constituted 524 (53.2%). The majority, 669 (67.4%) subjects were found 15 and above years old, 172 (17.3%) were under five, and 151 (15.2%) were between 5-15 years old. The cumulative positivity rate of malaria parasites by RDT and Giemsa light microscopy diagnosis in this survey was found 17.1 % (169) & 16.5% (163) respectively. According to Giemsa light microscopy as gold standard method for malaria diagnosis, SD BIOLINE rapid diagnostic test showed a sensitivity of 83.9%, specificity of 96.0%, positive predictive value of 80.4% and negative predictive value was 96.8%. The level of agreement (Kappa value) between first reader and second reader for BF Giemsa light microscopic diagnosis was also found 0.74 and p-value of < 0.00000. The logistic regression model supported few variables; such as being male (OR= 1.49, 95% CI=1.055-2.122), under five years old (OR=.323, 95% CI=.173-.602), having fever more than 24 hours prior to blood test (OR=1.57, 95%CI=1.061-2.325) and health education (OR=1.614, 95% CI=1.123-2.318) had statistically significant association.

Conclusion and Recommendations: The specificity and negative predictive values of SD BIOLINE malaria diagnostic rapid test was found excellent (96.0% & 96.8%). However, the sensitivity and positive predictive value of this RDT was relatively low (83.9% & 80.4% respectively). Therefore, training of laboratory technicians on RDTs and malaria microscopy diagnosis should be in place to monitor quality of diagnostic services, interventions focusing knowledge and practice of malaria transmission of the community and laboratory supplies issues needs focus at each level in the health system.

Keywords: Amhara region, SD BIOLINE, Malaria diagnosis, specificity and sensitivity
Prevalence of Mental Distress and Associated Factors Among Undergraduate Students of University of Gondar, Northwest Ethiopia: A Cross-Sectional Institutional Based Study. Berihun Assefa Dachew MPH, MSc, University of Gondar; Telake Azale, MPH, PhD fellow; Resom Berhe, MPH.

Background: Mental health problems affect society as a whole and no group is immune to mental disorders; however, students have significantly high level of mental distress than their community peers.

Objectives: The purpose of this study was to assess the prevalence and associated factors of mental distress among undergraduate students of University of Gondar, Northwest Ethiopia.

Methods: Institution based cross sectional study was conducted among 836 students from April 9-11/2014. Stratified multistage sampling technique was used to select the study participants. Data were collected using pretested and structured self-administered questionnaire. Bivariate and multivariate logistic regression model was fitted to identify factors associated with mental distress among students. An adjusted odds ratio with 95% confidence interval was computed to determine the level of significance.

Results: Prevalence of mental distress among students was found to be 40.9%. Female sex (AOR=1.65; 95% CI 1.17-2.30), lack of interest towards their field of study (AOR=2.28; 95% CI 1.49-3.50), not having close friends (AOR=1.48; 95% CI 1.03-2.14), never attend religious programs (AOR=1.58; 95% CI 1.02-2.46), conflict with friends (AOR=1.93; 95% CI 1.41-2.65), having financial distress (AOR=1.49; 95% CI 1.05, 2.10), family history of mental illness (AOR=2.12; 95% CI 1.31-3.45), Ever use of Khat (AOR=1.71; 95% CI 1.12-2.59), lower grade than anticipated(AOR=2.07; 95% CI 1.51-2.83), lack of vacation or break (AOR=1.46; 95% CI 1.06-2.02), and low social support(AOR=2.58; 95% CI 1.58-4.22) were significantly associated with mental distress.

Conclusion: The overall prevalence of mental distress among students was found to be high. Therefore, it is recommended that mental distress needs due attention and remedial action from policy makers, college officials, non-governmental organizations, parents, students and other concerned bodies.

Keywords: Mental distress, Students, University of Gondar

Sankib. College of Health Sciences, Debre Markos University, Debre Markos, Ethiopia

Background: Work related stress among nurses is a pattern of reactions occurring when work demands not matched to their knowledge, skills or abilities, and challenges their ability to cope. This affects nurse’s health, resulting in burnout and high turnover to staff and poor patient care. Hence, this study would add a body of knowledge about the magnitude and associated factors of stress among nurses working in public hospitals of Addis Ababa, Ethiopia.

Objective: The objective of this study was to assess prevalence and associated factors of work related stress among nurses working in public hospitals of Addis Ababa, Ethiopia.

Methods: An institution-based cross sectional study was conducted in public hospitals of Addis Ababa in 2012. A total of 343 nurses were included in the study. Ethical clearance was obtained from Institutional Review Board of the University of Gonder and Amanuel Mental Specialized Hospital. Informed consent was obtained ensuring privacy and confidentiality throughout the data collection process. Data were collected by pre-tested and self-administered questionnaires using nursing stress scale. Data were coded, entered and analysed using SPSS version 20 software package. The association between variables were analyzed using logistic regression.

Results: A total of 320 nurses were participated, yielding a response rate of 93%. Mean age was 31 years ± 8.9 years. Thirty seven point eight percent of nurses were stressed. Significant associations were found between nurses’ stress and gender (AOR=2.47, 95%CI (1.28, 4.77)), work shift (AOR=5.719, 95%CI (2.54, 12.9)) and illness (AOR=3.09, 95%CI (1.21, 7.89)). There were also significant associations between stress and marital status and work site/unit of the nurses.

Conclusion: Prevalence of work related stress was high. More than one third of nurses working in public hospitals were stressed in their work places. For nurses to perform their jobs safely and proficiently, all stake holders should design stress reduction and management programs.

Keywords: Stress, work related stress, nurse, public hospitals, Ethiopia
High Prevalence of Substance Use and Associated Factors among Adolescents in Woreta, Northwest Ethiopia. Anteneh Messele*, Telake Azele*, and Solomon Messele†† Department of Nursing, College of Medicine and Health Sciences, University of Gondar, Ethiopia †Department of Reproductive Health, Institute of Public Health, University of Gondar, Ethiopia †Department of Epidemiology and Biostatistics, Institute of Public Health, University of Gondar, Ethiopia.

Background: Globally, substance use has become one of the heightening major public health and socio-economic problems. This study aimed to assess the prevalence and associated factors of substance use among high school adolescents in Woreta Town, Northwest Ethiopia.

Methods: School based cross sectional study was conducted among 684 9th to 12th grade students selected using stratified sampling technique in Woreta Town from April 7 to 15, 2012. Data were collected using anonymous questionnaire adopted from the 2008 Community That Care Youth Survey. Binary logistic regression analysis was performed to identify factors for substance use.

Results: A total of 651 students participated in the study with a response rate of 95.2%, of whom 358(55%) were males. The current prevalence of substance use was 47.9%, while the lifetime prevalence was 65.4%. Alcohol was the commonly used substance with current and lifetime prevalence of 40.9 % and 59% respectively. Siblings’ use of substances (AOR: 2.72, 95%CI: 1.79-4.14), family history of alcohol and drug use (AOR: 2.24, 95%CI: 1.39-3.59) and friends’ use of substances (AOR: 2.14, 95%CI: 1.44-3.18) were found to be predictors of substance use. Religiosity and social skill were found to be 54% (AOR: 0.46, 95% CI: 0.31-0.68) and 39% (AOR: 0.6, 95% CI: 0.40-0.91) protective of substance use respectively.

Conclusions: The prevalence of substance use amongst adolescents was high for the three substances with alcohol being the commonest. Community norms favorable to substance use, parental history of alcohol and substance use, siblings’ substance use, poor academic performance, low perceived risk of substances and friends’ use of substances were the risk factors while religiosity and social skills were found to be protective factors for adolescent substance use. Initiate public awareness campaigns to inform adolescents and adults, particularly parents, of the risk of substance use.
Public Stigma against People with Mental Illness in Jimma Town, South West Ethiopia. 

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**Background:** In low income countries where misconceptions are rampant and awareness about mental illness is limited, prejudice towards persons with mental illness is widespread. Prejudices can lead to poor self-esteem, reduced motivation, threat to job opportunities and isolation of persons with mental illness. Therefore, understanding the level of stigma helps to design appropriate intervention plans aiming at reducing stigma.

**Objective:** To assess the magnitude and factors associated with stigma against people with mental illness among Jimma town residents.

**Methods:** A cross-sectional descriptive study was conducted on adult residents in Jimma town. The data was collected using Community Attitude towards Mentally Ill (CAMI) questionnaire from 845 residents randomly selected from the town. The study has four outcome variables each consisting ten Likert type items, each item ranked from 1 strongly disagree to 5 strongly agree and with expected minimum total score of 10 and maximum score of 50. The collected data was cleaned and fed to statistical package for social science (SPSS version 20.00). Descriptive study, Pearson correlation, independent sample T-test, one way ANOVA and multiple linear regression were performed.

**Result:** Our data revealed that out of the total 820 residents of Jimma town 444(54%) were females and the mean (± SD) age was 35(±8.5). The residents held high level of stigmatizing attitude towards persons with mental illness along all the subscales; the community was less authoritarian, 27.17(±4.96) and socially restrictive views, 32.41(±4.20). However, they held relatively less benevolence, 35.34(±4.42) and more intolerant attitudes towards community based mental health ideology, 33.95(±5.82). Occupation was the most important variable in which house wives were less stigmatizing (P<0.05).

**Conclusion:** The present study finding revealed that negative attitude against people with mental illness is widespread, indicating a need to develop strategies to reduce stigma attached to mental illness at both institutional and community level.
Psychoactive Substances Use (Khat, Alcohol and Tobacco) and Associated Factors among Debre Markos University Students, North-West Ethiopia, 2013. Girmay Tsegay*, Ahmed Esmaei†. 

Department of Public Health, Debre Markos University, Ethiopia, Department of Microbiology, Immunology & Parasitology, Debre Markos University, Ethiopia.

Background: Use of substances such as alcohol, khat leaves (Catha edulis) and tobacco has become one of the rising major public health and socio-economic problems worldwide. Recent trends indicate that the use of substances have dramatically increased particularly in developing countries. Alcohol, especially in high doses, or when combined with khat or tobacco, continues to claim the lives of many young people.

Objective: The aim of this study was to determine the prevalence and associated factors of psycho-active substance use among undergraduate students in Debre Markos University.

Methods: Institution based quantitative cross sectional study design was conducted among Debre Markos university students in from 1 -10 may 2013. A sample of 845 students was selected by using multi stage sampling technique. The data was collected by using pre tested anonymous self administered questionnaire and the collected data was cleaned, coded, entered into EPI-DATA version 6 and transferred & analysed using SPSS computer soft ware package version 20.

Results: Out of 845 students 800 students were participated in the study and make it the response rate 96.6 %. The overall life time and prevalence of psychoactive substance use in the last 12 months among Debre Markos university students was 48.4% and 46.3%, respectively. The prevalence of khat chewing, alcohol drinking and cigarette smoking in the last 12 months was 28.5%, 33.8% and 10%, respectively. A large proportion of the study participants were introduced for khat chewing 60%, alcohol drinking 63% and cigarette smoking 70% by their peer friends. The commonest reason for khat, alcohol and cigarette using were to keep alert while reading 46.1%, for relaxation 79% and to relief stress 36.6%, respectively. Being male was strongly and positively associated with khat use, drinking alcohol and cigarette smoking [AOR: 3.2, 95%CI: (1.83, 5.32)], [AOR: 2.62, 95%CI: (1.26, 4.32)] and [AOR: 2.6, 95%CI : (1.17, 5.76)], respectively.

Conclusion: Firstly a significant proportion of students use psychoactive substances. Secondly, important variables were identified as predictors for the increased psychoactive substance use. The odds of psychoactive substance use increased with being male, urban residence and peer pressure. Therefore, actions targeting on those predictors are necessary to effectively reduce the use of the psychoactive substance use.

Keywords: Substance use, Khat, Alcohol, Cigarette, University Students
The Role of Cognitive Behavioral Group Therapy (CBGT) in Addressing Psychological Problems of Patients with MDR TB Medication. Meseret Ayalew, MA in Clinical Psychology, Lecturer at Bahir Dar University and Tezeda<div class="footnotes">
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  WYC Affairs' Directorate Director. St' Peter Hospital.
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Patients who were identified as negative in the mental status examination which is done when patients admitted for MDR-TB medication at the first time, have been observed later developing some kinds of psychological distress. This study examined whether Cognitive Behavioral Group Therapy (CBGT) is effective in addressing Psychological problems of patients with MDR TB medication. It was conducted at St’ Peter Hospital. 32 participants were selected using the inclusion and exclusion criteria and then randomly assigned in to the control and experimental group i.e. 16 participants to the control and 16 participants to the experimental group. The research design was experimental pre test post test control group design. Self Report Questionnaire (SRQ) was used for data collection. Participant in the treatment group received Cognitive Behavioral Group Therapy (CBGT) for five weeks i.e four days per week, one hour per session, for a total of 20 sessions while the control group was treated as usual. The collected data were analyzed using descriptive statistics, dependent, and independent t-test. The finding revealed that there was statistically significant difference between the treatment and control group.
Poster Presentations
Biomedical

Hepatitis B Virus Co-Infection and its Predisposing Factors among HIV Positives at Karamara Hospital; Cross-Sectional Study between Art Naive and Art Initiated. Fentale Getnet Yimer MSc, Lecturer, Jigjiga University; Henok Asresahgn Asfaw, MPH, Lecturer; and Beyene Meressa Adhena, MPH, Lecturer, Jigjiga University.

Background: Hepatitis B virus (HBV) infection is one of the major diseases of mankind that has shown to cause serious public health problem. HBV and HIV share common transmission pathways, and the prevalence of hepatitis B surface antigen (HBsAg) reactivity in HIV co-infected patients is much higher than the population prevalence. HBV/HIV infected individuals are 6 times more likely to develop chronic hepatitis B than HIV negative individuals.

Objective: to assess HBV co-infection and its predisposing factors among ART naïve and ART-initiated HIV positives attending at Haramara Hospital HIV clinicin Ethiopian Somali Regional State.

Method: a comparative cross sectional study was conducted from March to September 2013. Questionnaire, clinical and laboratory based data were collected from 350 (157(44.9%) and 193(55.1%) were ART naïve and ART initiated respectively) patients. All the 350 blood samples collected were examined using immuno-chromatographic HBsAg test. Data was entered into Epi Data and analyzed using SPSS 17 computer software. Chi-square ($\chi^2$) and logistic regression tests were used and p-value of less than 0.05 was considered as cut off value for statistical significance.

Results: Age of the patients ranges from 15 to 71 years (mean=35.73 and standard deviation of 10.1). The majority (68%) were females and the rest 32% were males. An overall 4.6% (95% CI: 2.7-7.1%) prevalence of HBV co-infection was observed. Higher prevalence of HBV co-infection was found among ART naïve HIV positives which was 6.4% (95% CI: 3.3-11%) compared to 3.1% (95% CI: 1.3-6.3%) prevalence among ART-initiated HIV infected individuals. Of the predisposing factors, only history of surgery had a statistically significant association with HBV co-infection among HIV positives (p-value=0.02, AOR=32.95%, CI=1.7-62).

Conclusion: the overall prevalence of HBV co-infection lies under intermediate epidemicity according to WHO classification. This underscores the importance of HBsAg Screening, which was not routinely done, for HIV infected individuals prior to HAART initiation to effectively manage co-infection and hepatitis.

Keywords: Co-infection, HBV, HIV, Pre-ART/ART naïve, ART-initiated, predisposing factors.
Bacterial Profile of Adult Sepsis and their Antimicrobial Susceptibility Pattern at Jimma University Specialized Hospital, Southwest Ethiopia. Ahere Kamaleh (MSc), Mizan Tepi University, Tesfaye Kasta (PhD), Department Head of Medical Laboratory Sciences, Zeinabeh S/Mariam (MSc), Jimma University

**Background:** Sepsis is a common and highly fatal clinical syndrome that is characterized by systemic inflammatory response syndrome due to infection.

**Objectives:** The objective of this study was to determine bacterial profile of adult sepsis and their antimicrobial susceptibility pattern at Jimma University Specialized Hospital.

**Methods:** This laboratory based prospective cross sectional study was performed in 95 adult septic cases in Jimma University specialized hospital during the period of March to June 2013. Blood cultures were performed to isolate bacteria and susceptibility to antibiotics was assessed as per standard procedures of microbiological methods. The data was analyzed using SPSS for windows version 16.0 software.

**Results:** From a total of 95 suspected septic cases involved in this research, 15 (15.8%) were positive to eight different types of bacteria. Gram positive organisms were isolated in 53.3% of these episodes with *Staphylococcus aureus* being the most frequent, while Gram negative accounted for the remaining 46.7% with *Escherichia coli* being the commonest isolate among Gram negative bacteria. The isolates showed high rates of resistance to most antibiotics tested. The ranges of resistance for Gram positive bacteria were 0% to 100%, and for Gram negative from 14.3% to 85.7%. In our study multi-drug resistance (resistance to three or more drugs) was observed in 80% of isolates. Of this 87.5% and 71.4% accounted for Gram positive and Gram negative bacteria respectively \(P=0.438\).

**Conclusion and Recommendation:** *S. aureus* and *E. coli* were the most common Gram positive and Gram negative organisms causing adult sepsis, respectively. Ciprofloxacin was the most effective compared with other drugs tested against the Gram positive and Gram negative bacteria. Multi-drug resistance was detected in 80% of the isolates. The detection of multi-drug resistant isolates may further limit therapeutic options. Therefore, routine bacteriological profile examination along with their antibiotic resistance patterns must be a necessary component in the management of adult sepsis. A knowledge of these patterns is essential when local polices on the use of antibiotics are being devised.

**Keywords:** Adult sepsis, bacterial profile, antimicrobial susceptibility pattern.
Impairment of Liver Function Tests and Lipid Profiles in Type 2 Diabetic Patients Treated at The Diabetic Center in Tikur Anbessa Specialized Teaching Hospital (TASTH), Addis Ababa, Ethiopia. Belay Zewdie Wondimu (MS), Lecturer, Biomedical Sciences Department Public Health & Medical Sciences College Jimma University; Seifu Daniel (PhD), Tedla Kebede (MD), N.Gnanasekaran (PhD).

Background: The liver is an insulin-sensitive organ. Insulin resistance is recognized as a pathological factor in the development of liver function impairment and in non-alcoholic fatty liver disease (NAFLD). Studies on liver function abnormalities in type 2 diabetic patients in Ethiopia are lacking. In this study we assess liver function tests in patients with type 2 diabetes mellitus and we examine factors associated with these biochemical changes.

Methods: A cross-sectional study was conducted on type 2 diabetic patients attending at diabetic center, TASTH. By assessing their file and using the well-designed questioners, the type 2 diabetic patients with history of alcohol intake, hepatotoxic drugs like amiodarone, antituberculosis drugs and herbs like khat, shisha, clinical evidence chronic hepatitis (of the 80 patients with type 2 DB, one in five (16) patients were tested for chronic hepatitis B (HBV) and chronic hepatitis C (HCV), Using serum anti–HCV antibody and hepatitis B surface antigen (HBs Ag). All 16 patients tested should no evidence for chronic HBV or HCV infection), were excluded from this study. However, none of the 64 diabetic patients and 60 non–diabetic patients was tested for chronic HCV and HBV, due to financial constraints. Also patients with severe or devastating diseases such as cancers and severe anemia (hemoglobin<10 g/dL); patients with HIV and on using HAART, pregnant women were excluded from this study.

Out of 100 randomly selected diabetic patients, 80 individuals fulfilled the criteria set up for inclusion, while 20 were excluded. Five mL of venous blood were drawn from each volunteer type 2 diabetic patients in this study using a 5mL disposable plastic syringe by the professional nurse. The blood was poured in a plane container and then centrifuged after clotted. Serum was kept at 20°C in sterile condition till used. Liver enzymes (AST, ALT, and ALP) and Lipid profiles (TC, HDL, TAG) and Serum glucose were measured and analyzed by using automated machine Roche Diagnostic/Hitachi 902, Germany according to the manufacturer procedures (protocols). But concentrations of TP, TB and DB were determined manually. The data collected using structural format and appropriate equipment and reagents were entered in to SPSS for window version 20. Independent sample t test and curve estimation regression analysis were carried out to compare the LFTs, and lipid profiles in the patients with the non-diabetic 60 control individuals.

Results: Mean values of liver function tests (ALT,AST,ALP,TP,Bilirubin) and lipid profiles (TC,LDL,HDL,TAG) were significantly higher in diabetic patients compared with the non-diabetic controls (P<0.05). In contrast, total protein and high density lipoprotein concentrations in diabetic patients were lower compared with non-diabetic control group (P<0.01). Overall, 22 patients (25%) had at least one or more abnormal liver function tests and lipid profiles. 39 patients (48.75%), 62 patients (77.5%), 47 patients (58.75%), 52(65%) patients had abnormal total serum Cholesterol, LDL, TAG, and HDL levels respectively. The liver function and lipid profile tests among different anti diabetic on taking groups of the study patients were not statically significant at p value <0.05.

Conclusion: Elevated parameters were greater among persons with type2 diabetic patients. There is less association between liver function impairments with the anti-diabetic drugs the patients on taking.

Recommendations: We would like to thank school of Post Graduate, Addis Ababa University. Our special gratitude also goes to Jimma University for giving an opportunity for the author (Belay Zewdie) to stay in college of health sciences, Addis Ababa University, until the achievement of this work.

Keywords: LFT; Alkaline phosphatase; lipid profile; Aminotransferases (ALT & AST)

**Background:** Urinary tract infections (UTIs) are serious health problem affecting millions of people each year. UTIs commonly occur next to respiratory tract infections worldwide. Women have a higher risk of contracting UTIs than men. Approximately 50% -70% of women have UTIs during their lifetimes and 20%-30% of them have recurrent episodes.

**Objective:** To determine the prevalence & antibiotics susceptibility patterns of common bacterial uropathogens, and identify associated risk factors of UTIs from pregnant women attending antenatal care (ANC) clinic.

**Methods:** Cross sectional study was conducted among pregnant women attending ANC clinic at St.Paul Hospital Millennium Medical College & Selam Health Center from September to November, 2013. A total of 320 pregnant women were involved in the study. Urine samples (5-10ml) were collected after informed consent obtained from study participants. The samples were processed by standard bacteriological procedure for isolation & determining antibiotic susceptibility pattern. EPI info 3.5.1 & SPSS version 21 were statistical packages used for analysis. Frequencies & percentage for each variable were calculated. Binary logistic regression was used to identify association between variables. Tables & figures were used for data presentation.

**Result:** Significant growth of bacteria revealed as 28.8% & 23.5% for symptomatic & asymptomatic pregnant women respectively with overall prevalence of UTIs 25.9%. The most common isolates detected were E.coli (27.7%), S.saprophyticus (26.5%) and S.aureus (21.6%). Gram positive & gram negative bacteria showed high sensitivity against Nitrofurantoin with a rate of 89.28% and 81.48%, respectively. Among the risk factors assessed, educational status was significantly associated with UTIs (P=0.029).

**Conclusions:** The magnitude of UTIs both in symptomatic & asymptomatic pregnant women, with increased resistant to the commonly prescribed antibiotics calls for an early screening of all pregnant women to UTIs & periodic monitoring any changes in the antibiotics susceptibility patterns of urinary tract pathogens.

**Keywords:** UTIs, Pregnant women, Prevalence, Uropathogens, Antibiotic Resistance

Background: The role *Helicobacter Pylori* (*H. pylori*) infection plays in the aetiology of atopy remains unclear, although a possible protective role has been hypothesized.

Objective: The aim of this study was to undertake a systematic review and meta-analysis of epidemiological studies to quantify the association between *H. pylori* infection and atopy.

Methods: A comprehensive literature search in MEDLINE/PUBMED and EMBASE (up to August 2013) was carried out to identify all observational epidemiological studies (cross-sectional, cohort, case–control) published in English language that evaluated the association between *H. pylori* infection and objectively measured atopy (measured by allergen skin tests or specific IgE). Study quality of included studies was assessed by the Newcastle-Ottawa scale. Random-effects meta-analyses were performed to obtain pooled estimates of effect.

Results: Twenty-two observational studies involving 21,348 participants were identified as eligible for inclusion in the review, of which 16 were included in the meta-analysis. *H. pylori* infection was associated with a significantly reduced risk of atopy (pooled odds ratio (OR) 0.82; 95% confidence interval (CI) 0.73–0.91; P < 0.01). Subgroup analysis according to atopy definition revealed a slightly greater protective effect for atopy defined as raised allergen specific IgE (OR 0.75; 95% CI 0.62–0.92; P <0.01; 7 studies). Findings did not differ according to the population age (adult or children), methodological quality or study design.

Conclusion and Clinical Relevance: Evidence from epidemiological studies suggests that *H. pylori* infection is associated with an estimated 18% reduced risk of atopy. The protective effect of *H. pylori* on atopy could provide an important insights into pathogenesis and possible therapeutic opportunities in allergic disease.

Background: The human cytomegalovirus (CMV) is one of the major causes of congenital infections. Maternal infection poses the risk of congenital CMV infection and occurs in 0.5%-22% of all life births. CMV is more widespread in developing countries and in communities with lower socioeconomic status. Thus aim of the study was to determine the prevalence of CMV infection and identify risk factors of CMV seropositivity.

Method: Using cross sectional study design a total of 200 pregnant women were consecutively recruited starting from June to July 2014. Blood samples were collected from all study participants and structured questionnaire was introduced to gather socio-demographic and risk factor related data. ELISA was used to detect anti-CMV IgG and IgM. SPSS version 20 was used to analyze the data, and regression was also used to see the strength of association.

Results: Out of 200 participants CMV-IgG and CMV-IgM were detected from 88.5%, and 15.5% respectively. 73.5% of the women were immune/positive only for IgG. The second group was those with primary infection [IgG (+) plus IgM (+)] and this consisted of 15.0% participants. Eleven percent of those participants were at high risk for primary infection during their pregnancy. In the last category, one pregnant woman was identified as having a recent primary infection. There was no statistical significant association detected between CMV positivity rate with obstetrical, socio-demographical and clinical characteristic (p-value<0.05). Therefore, in this study, there was no independent predictor for the infectious rate of CMV among pregnant women.

Conclusion: Despite the high rate of sero-positivity, the importance of CMV testing during pregnancy should not be undermined. A comprehensive study with a long term follow-up examination of pregnant women and their offspring born to CMV IgM-positive mothers may be required for estimation of symptomatic congenital infection.

Keywords: Cytomegalovirus, Human cytomegalovirus, Seroprevalence, Pregnancy, Ethiopia
Determination of the Magnitude of Hepatitis B Viral Infections in Healthcare Workers, Addis Ababa, Ethiopia.  Gigrachew Taddesse, MS; Ethiopian Medical Laboratory Association; Kassu Desta, MS, Addis Ababa University, College of Health Sciences, School of Allied Health Sciences, Department of Clinical Laboratory Sciences; Addis Tamirn, MD, MPH, Office of the Ministers, Federal Ministry of Health of Ethiopia; Abate Bane, MD, Addis Ababa University, College of Health Sciences, School of Medicine, Department of Internal Medicine.

Background: Hepatitis B virus infection is a serious global health problem, with 2 billion people infected worldwide, and 350 million suffering from chronic HBV infection. About 3 million healthcare workers face occupational exposure to bloodborne viruses each year in which about 2 million to hepatitis B virus infections. This study was conducted to determine the magnitude and associated risk factors of Hepatitis B viral infections in healthcare workers.

Objective of the Study: This study was initiated to determine the magnitude and associated risk factors of Hepatitis B viral infections in healthcare workers in St Paul Hospital Millennium Medical College Addis Ababa, Ethiopia.

Methods: Data were obtained from a cross-sectional study conducted in St Paul Hospital Millennium Medical College, among healthcare workers from November 2013 – May 2014. A convenient sampling method was utilized to get the required sample size. A structured questionnaire was used to capture individual socio-demographic characteristics and associated risk factors. Five ml blood was collected, centrifuged and the serum was analyzed for the serologic markers of HBsAg, anti-HBc and anti-HBs using Chemiluminescent Microparticle Immunoassay. Descriptive and logistic regression models were used for analysis.

Results: Among the 313 healthcare workers, the seroprevalence of current hepatitis B viral infection was 2.6%; while prevalence of life time exposure was 25.6%. Prevalence of needle stick and sharp injuries were 33.9% and 35.5% respectively. While, exposure to blood and body fluids were 57.2% and 44.4% respectively. Consistent use of gloves was reported by 49.8% of HCWs. Doctors practiced 71.4% of consistent use of glove, while laboratorians were the least likely to consistently use gloves (40.0%). Only 1.6% of HCWs had completed scheduled vaccination against HBV and 73.8% of HCWs were susceptible to infection. Exposure to blood (COR: 9.351, 95% CI: 1.164 – 75.095, p < 0.012), jaundiced and diagnosed liver disease (COR: 3.096, 95% CI: 1.051 – 9.120, p < 0.032), and HBV vaccination (χ² = 11.145, p < 0.002), were independent risk factors that were potentially associated with hepatitis B viral infections.

Conclusions: The prevalence of current hepatitis B virus infection and life time exposure to hepatitis B viral infection among healthcare workers was high. Exposure to potentially infectious body fluids, needle stick and sharp injuries was also high. Whereas a small proportion of healthcare workers are vaccinated against hepatitis B virus infection. Besides the doctors, nurses and medical laboratory professionals; cleaners, porters and general service providers were also at a comparably high or more risk of HBV infection as they interact with patients and clinical wastes. Emphasis to continuous medical education and training on infection prevention and safety precautions, vaccination package to HCWs, compliance with universal precautions, access to safer injection technologies and post-exposure management are strongly recommended to improve safety of HCWs and quality of patient care.

Keywords: Hepatitis B Virus, HBsAg, anti-HBc, anti-HBs HealthCare Workers, seroprevalence, Vaccination, Risk Factors.
Antimicrobial Effect of Alchemilla Abyssinica, Alchemilla Haumanni and Alchemilla Fisheri Crude Extracts on Common Pathogenic Bacteria. Abkilt Esaiyas, MS;
Unit of Medical Physiology, College of Medicine and Health Sciences, Hawassa University; Yakonsetehey Mekonnen, PhD, Prof., Faculty of Life Sciences, Addis Ababa University; Derese Daka, MS; Department of Medical Laboratory, College of Medicine and Health Sciences, Hawassa University

Background: The genus Alchemilla, Family Rosaceae is an herbaceous perennial plant widely distributed in cool temperate regions and on high mountains of the tropics. Different Alchemilla spp are claimed to have various medicinal value while A. diademata and A. pedata are reported to poses antimicrobial activity which provided good ground for this investigation.

Methods: In this research EtoAc/H2O (96% v/v) crude extracts of dried aerial parts of A. abyssinica, A. haumanni and A. fisheri ranging from 20-40 mg/ml were tested for their antimicrobial activity against Staphylococcus aureus, Escherichia coli, Streptococcus pneumonia, P. vulgaris, Streptococcus pyogenes and Pseudomonas aeruginosa by the agar dilution method using Muller Hinton agar for the first five and blood agar for P. aeruginosa. Six standard drugs were used as positive controls.

Results: Except A. abyssinica crude extractson S. pneumonia thelow concentrations up to 20 mg/ml of all the three Alchemilla sp had no antibacterial effect on any bacterial strain tested. A. abyssinica crude extract on the other hand showed no effect up to 40 mg/ml concentration on E. coli, while all the other extracts tested have shown antibacterial effect on all strains at this 40 mg/ml concentration. Varying MICs ranging between 20-40 mg/ml were obtained at lower concentrations for the different strains tested. The extracts used in this study are shown to perform significantly similar with standard drugs: Penicillin (10µg), Ceftriaxone (30µg), Ciprofloxacin (5µg), Chloramphenicol (30µg), Amoxicillin (30µg) and Ampicillin (10µg) for S. aureus, S. pneumonia, P. vulgaris and S. pyogen. Moreover, they are shown to be more effective than Ampicillin for P. aeruginosa.

Conclusion and Recommendations: The results of the present study showed that A. abyssinica, A. haumani and A. fisheri poses dose-dependent antimicrobial activity against S. aureus, E. coli, S. pneumonia, P. vulgaris, S. pyogen and P. aeruginosawhich could be beneficial for human and animal health. Testing of other taxonomically related plants for the same effect and investigating effects on wider microbial pathogens as well as further chemical work to identify the compound(s) responsible for the activity is recommended.

Keywords: antimicrobial activities, Alchemilla spp., minimum inhibitory concentration
Seroprevalence of Hepatitis B and C Viruses and Risk Factors in HIV Infected Children at Felgehiwot Referral Hospital, Ethiopia. Bayed Abera, (BSc, MSc), Associate professor; Yohannes Zenebe, Wondemagen Muhi, Mulugeta Kibret and Getachew Kashu. 1Department of Microbiology, Parasitology and Immunology, College of Medicine and Health Sciences, Bahir Dar University, Ethiopia. 2Department of Biology, Science College, Bahir Dar University, Ethiopia. 3Bahir Dar Regional Health Research Laboratory Center

Background: Liver hepatitis from Hepatitis B (HBV) and hepatitis C virus (HCV) co-infection is the leading cause of morbidity and mortality in HIV infected children and it is more severe in resource poor settings. Data on seroprevalence of HBV and HCV among HIV infected children are scarce in Ethiopia. This study was conducted to determine seroprevalence and risk factors of HCV and HBV and its effect on liver enzyme among HIV-positive children aged 18 months to 15 years attending the paediatric HIV care and treatment clinic at Felege Hiwot referral hospital, Ethiopia.

Methods: A cross-sectional study was conducted in May, 2014. Demographic and risk factors were collected using a structured questionnaire. Hepatitis B surface antigen (HBsAg) and anti-HCV antibodies were detected using an enzyme linked immunosorbent assay (ELISA). Alanine aminotransferase (ALT) levels were determined. The results were analyzed using descriptive and logistic regression.

Results: A total of 253 HIV positive children, with boys 52.5% and girls 47.5% took part in the study. The median age of the children was 11 years. Overall, 19 (7.5%) of HIV infected children were positive either for HBsAg or anti-HCV antibodies. The seroprevalence of HCV and HBV were 5.5% and 2.0%, respectively. All HBsAg positive children were in older age groups (11-15years). Seroprevalence of HCV was higher in children from urban (7.7%) than rural (1.2%) residents (P=0.02). Overall, 51 (12.1%) of children had elevated ALT. Of these, 31.5% was from HBsAg or anti-HCV antibody positive children whereas 9.8% was from hepatitis B or C virus negative children (P=0.001). Using multivariate logistic regression being positive for HBsAg or anti-HCV antibody (AOR: 4.7(95% CI: 1.5-13.5) was significantly associated with elevated ALT.

Conclusion: HCV and HBV co-infection are common in HIV positive children. In HIV positive children, HBV and HCV co-infection were associated with elevated ALT than ART usage. Routine screening for HBV and HCV in HIV infected children should be implemented.

Keywords: HBV, HCV, HIV, ALT, Children, Ethiopia
Prevalence of Bacterial Isolates from Cerebrospinal Fluid, their Antimicrobial Susceptibility Pattern and Associated Risk Factors among Pediatrics Suspected Meningitis Patients at Tikur Anbessa and Yekatit 12 Specialized Hospitals, Addis Ababa, Ethiopia.  Malu Hassen¹, Gebnu Mulugeta¹, Kassu Desta¹, Meseret Assefa² ¹ Department of Medical Laboratory Sciences, College of Health Sciences, Addis Ababa University ² Ethiopian Public health institute

Background: Bacterial meningitis remains a major cause of mortality and morbidity in neonatology and pediatrics patients in many countries of the world including Ethiopia. Information on prevalence of bacterial meningitis, susceptibility of the causative microorganism to rationalize treatment and associated risk factors is scare among pediatrics groups.

Objective: To isolate bacteria's from CSF specimen, determine antimicrobial susceptibility pattern and to assess associated risk factors among pediatrics suspected meningitis patients attending pediatrics clinic at Tikur Anbessa and Yekatit 12 specialized hospitals, Addis Ababa, Ethiopia.

Methodology: A hospital based cross sectional study was conducted at Tikur Anbessa and Yekatit 12 specialized hospitals, from September, 2013 to January, 2014. A consecutive sampling technique was used. Three hundred eighty five pediatrics patients attending the hospital at pediatrics ward that were gave CSF samples for diagnostic purpose were enrolled in the study. Samples were taken from them and analyzed according to standard microbiological (culture) procedures, antimicrobial susceptibility pattern were determined using disc diffusion technique. Data were double entered with EPI INFO version 3.5.3 and analyzed using SPSS version 21 software. Binary logistic regression was used to identify the association between variables.

Result: Bacterial pathogens were isolated from 17 patients showing an isolation rate of 4.4%. Among these, 58.8% and 41.2% were gram negative and gram positive organisms respectively. The most commonly isolated bacteria were S.pneumoniae (35.3%), followed by Neisseria meningitidis (11.8%). Among all risk factors assessed, none of them were statistically significant with suspected meningitis cases (p>0.05). The antimicrobial sensitivity remained high for third generation cephalosporins for most of the isolates.

Conclusion The prevalence of bacterial isolates in this study was 4.4%. Frequency of single as well as multiple drug resistance was very high among the bacterial isolates. Area specific periodic evaluation of antimicrobial susceptibility test will be important.
Bacteriological Profile of Burn Wound: Addis Ababa Ethiopia. Awoke Darbi1, MS; College of Medical and Health Sciences, Department of Medical Microbiology, Immunology and Parasitology, Debre Tabor University; Tamrat Abebe2(PhD), Adane Mihret3 (MS), Yohannis Demeke4 (MD+); College of Medicine and Health Science, Addis Ababa University.

Background: Burn is one of the most common devastating and a very painful form of trauma. Significant thermal injuries induce a state of immunosuppression that predisposes burn patients to infection complications.

Materials and Methods: A prospective hospital based study was carried out from December 2010 to February 2011 at Yekatit 12 hospital burn center. Periodic wound swabs were collected on 1st, 7th, and 14th days of hospital stay and processed with conventional culture and biochemical tests. Isolates were tested against commonly used antibiotics by Modified Kirby-Bauer disc diffusion methods. Data were analyzed by SPSS version 17.0 for Windows.

Results: From the total of 104 pus cultures, 101 isolates were identified. At the 1st day of pus culture the predominant isolate was Staphylococcus aureus15 (46.9%). On the 7th day of pus culture S. aureus21 (46.1%) and Pseudomonas spp20 (44.4%) were isolated. Similarly at the 14th day the most frequent isolates were S. aureus12 (50%) and Pseudomonas spp11 (45.8 %). Gram negative isolates, mainly Pseudomonas spp were found resistant for most of antibiotics used in the hospital.

Conclusions: The nature of periodic microbial wound colonization, flora changes and their antibiotic susceptibility pattern should be considered during the management and mainly in empirical antimicrobial treatment of burned patients.

Keywords/phrases: Burn, bacterial colonization, Antibiotic resistance, Ethiopia
Assessment of Pre-Analytical Error on Blood Specimens Referred for CD4 and Hematology Tests to Three Laboratories in Central Oromiya: Ethiopia. Mulat Weldie, MPH in M&E Candidate, Mekele University College of Health Sciences; Waleyn Worku, PhD Candidate, Department of Public Health, Gondar University.

Background: Although, Ethiopia is working to improve the qualities of laboratory services, errors are still prevailing. These errors are classified as pre-analytic, analytic and post-analytic. Pre-analytical phase of overall laboratory testing system is the potential source for numerous types of mistakes. The aim of this study was to determine the extent of pre-analytical error and factors contributing to this error among blood specimens referred for CD4 and Hematology tests.

Objective: To assess the magnitude of pre-analytical error and associated factors among specimens referred for CD4 and Hematology tests.

Method: This was a quantitative study triangulated by qualitative technique conducted in three laboratories in Central Oromiya Regional State. For quantitative study, a total of 754 randomly selected blood specimens and its accompanying laboratory request forms were reviewed using a structured checklist and the observations were categorized as defect on blood specimens and LRF information's. Data's were entered in to EPI-Info 3.5.3 and analyzed using SPSS version 20 software. P value of less than 0.05 was considered as statistically significant. For qualitative study, we conducted 10 in-depth interviews with health care professionals. Thematic content analysis of the interviews was performed using the Open Code software version 3.4.

Results: In this study, the magnitude of pre-analytical error among 754 blood specimens and its accompanying laboratory request forms was 314(41.6%) with 95%CI of (38.3-45.2). Blood specimen collection methods (syringe and needle methods), age (under 15 years old patients) and specimen testing facilities (Fiche and Saint Lukas hospitals) were independent predictors for error on blood specimens quality; with ORs (95%CI) of 4.948(1.993-12.285), 6.973(4.032-12.606), 2.964(1.480-5.936) and 3.582(1.696-7.563) respectively. The in-depth interview indicated that Process failure and lack of patient centeredness were additional factors accounted for pre-analytical error.

Conclusion and Recommendation: This study highlighted complexity of pre-analytical error control efforts in central Oromiya. Specimen collection methods, patient age, specimen testing facilities, process failure and lack of patient centeredness were factors and the reasons that most influenced pre-analytical testing process.
Accuracy of Sensocard Glucose Meter: Comparing with Reference Glucose Oxidase

Method. Muluksen Kassahun, Tadele Meleko, Molla Abebe; Department of Clinical Chemistry, School of Biomedical and Laboratory Sciences, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.

Introduction: Diabetes mellitus is a cause of morbidity, disability and mortality worldwide. Glucose measurement by glucose meter is one of the diagnosing and monitoring tools of diabetes mellitus. However, the accuracy of this instrument is in question. Therefore, the aim of this study was to assess the accuracy of Sensocard glucose meter comparing with reference glucose oxidase method at University of Gondar Hospital, Gondar, Ethiopia.

Methods: A prospective cross-sectional study was conducted in March, 2014. A total of 122 (equal number of type I and II) diabetic mellitus patients were selected by consecutive sampling technique. Glucose value was determined by Sensocard glucose meter and reference glucose oxidase method. The data were entered and analyzed using SPSS version 20 and Analyse-it version 3.76.1 softwares. Correlation coefficient and bias were calculated to observe the agreement of the glucose meter result with the comparative method. The minimum accuracy of Sensocard was determined based on ISO 15197:2003 and ISO 15197:2013 criteria.

Results: Sixty three (51.6%) participants were females. The mean age was 46.16 ± 15.5. The mean serum glucose value measured by reference method was 164.78 ± 86.33 mg/dl and the mean capillary blood glucose value measured by Sensocard glucose meter was 161.19 ± 78.1 mg/dl. There was no statistically significant difference between the means of Sensocard glucose meter and reference method glucose value (p-value=0.052). The correlation coefficient between the two methods was 0.975. The Sensocard glucose meter underestimated the overall glucose value from the reference method glucose value by a bias of 3.59.

Conclusion: Sensocard did not fulfill the minimum accuracy requirements of ISO 15197:2003 and ISO 15197:2013. Further study should be undertaken including hypoglycemic and normoglycemic individuals to see the accuracy of Sensocard in low and normal levels of blood glucose in addition to high blood glucose level in diabetes mellitus patients.
Determination of Eligibility to Antiretroviral Therapy in Resource Limited Settings using Total Lymphocyte Counts, Hemoglobin and Body Mass Index among HIV Positive Patients.  

**Fikir Asrie**, Baye Gelawb, Meselet Alem, Feleke Moges, Tadesse Awoke

**Background:** Acquired Immunodeficiency Syndrome is a serious public health problem in Ethiopia. CD4+ T cell count testing is the standard method for determining eligibility for antiretroviral therapy. However, automation for CD4+ T cell count is not widely available in sub-Saharan Africa including Ethiopia.

**Objective:** This study was to determine eligibility for antiretroviral therapy in resource-limited settings using total lymphocyte counts, hemoglobin and body mass index among HIV positive patients.

**Materials and methods:** CD4+ T cell count was determined using Becton Dickinson FACS count analyzer. Total lymphocyte count and hemoglobin concentration were measured by a Cell Dyn 1800 hematology analyzer and body mass index was determined. Correlation of total lymphocyte count, hemoglobin and body mass index with CD4+ T cell count was determined by Pearson’s correlation coefficient and p-value.

**Results:** The correlation between CD4+ T cell count and Total Lymphocyte Count (TLC) was not strong, but the association between CD4+ T cell count and TLC was highly significant and correlation between CD4+ T cell counts with hemoglobin were very weak. The sensitivity, specificity, Positive Predictive Value (PPV) and Negative Predictive Value (NPV) of TLC using threshold value of 1000 cells/mm³ for CD4+ T cell counts<350 cells/mm³ were 3%, 94%, 17% and 71%, respectively. Total lymphocyte count threshold of 1750 cells/mm³ were the better predictor of CD4+ T cell counts of <350 cells/mm³ when compared to < 200 cells/mm³.

**Conclusion:** TLC showed weak correlation with CD4+ T cell counts but the association between CD4+ T cell count with TLC was significant (p<0.0001). The TLC threshold of 1750 cells/mm³ were the most accurate predictors of CD4+ T cell counts of <350 cells/mm³. Therefore, the significant association of TLC with CD4+ T cell count may suggest that TLC could be used as marker for CD4+ T cell count in determining anti-retroviral treatment initiation when CD4+ T cell count is not available particularly in rural settings where laboratory facilities are lacking.
Ultrasound Survey on Human Cystic Echinococcosis in Selected Districts of South Omo Zone, SNNPR, Ethiopia. Woldeyes D.1, Petros B.2, Tilahun G.3, Zeyble E.4, Romig T.5 and Kern P.5 1 Arba Minch University, Ethiopia 2 3 Addis Ababa University, Ethiopia 4 University of Murn, Kenya 5 University of Ulm, Germany 6 University of Hohenheim, Germany

Background: cystic echinococcosis (CE) is a cosmopolitan parasitic zoonosis caused by larval stage of Echinococcus granulosus. It is highly neglected disease of public health problem among pastoral community of East Africa.

Objective: This survey was aimed to determine the current status and public health importance of CE in the pastoral areas of South Omo Zone, SNNPR, Ethiopia.

Methods: Ultrasound (US) survey was conducted in three districts, i.e. Hamer, Nyangatom and Dassenech, of South Omo Zone from May 5 to 24, 2014. A total of 2838 individuals were scanned after written consent. Some of these participants were interviewed to assess their awareness and attitude about the disease and their practice that related to the transmission of the disease.

Result: 75 of the study participants were found infected with CE. The infection seemed to more prevalent in Hamer Districts. 29 individuals were suggested to be treated by surgery. Liver was found to be the most affected organ and cystic lesion (CL) was the most common stage of CE cases. Interview results showed that the community had low level of awareness and wrong attitude about the disease. Moreover, their slaughtering and other practices were found to be risky.

Conclusion and Recommendation: CE is a public health problem in the pastoral community of those districts and similar outcome is also expected in other districts of the zone. Appropriate control measures are suggested to be taken by the concerned bodies after similar survey are conducted.

Keywords: Cystic Echinococcosis, Ultrasound, South Omo Zone
Tuberculosis Treatment Restores High Density Lipoprotein Cholesterol (HDI-C) And Increase Total Cholesterol (TC) And Low Density Lipoprotein Cholesterol (LDL-C) in Patients with Pulmonary Tuberculosis (TB). Yemane Amare, MSc, Department of Medical Laboratory Sciences, Wollega University; Miret Weldie, MSc, Department of Medical Laboratory Sciences, Addis Ababa University; Gebremedhin Gebremicael, BSc, TB/HIV Directorate, Ethiopian Health and Nutrition Research Institution; Feyissa Challa, BSc, TB/HIV Directorate, Ethiopian Health and Nutrition Research Institution; Girum Medhin, PhD, Institute of Pathobiology and Department of Community Health, Addis Ababa University; Desta Kassa, PhD, TB/HIV Directorate, Ethiopian Health and Nutrition Research Institution.

Background: Hypolipidemia is one of the major factors for developing pulmonary TB because cholesterol is an important molecule for good functioning of an immune system and necessary for macrophages to uptake and engulf mycobacterium.

Objective: to determine whether TB treatment normalizes the lipid profile strongly affected by pulmonary TB.

Methods: fasting plasma samples of 47 patients with active TB (ATB+), 24 with latent TB infection (LTB+) and 25 healthy controls (LTB-) at baseline again from 47 ATB+ groups after 6 month of treatment visiting Akaki and Kality Health Centres and S. Peter Hospital in Addis Ababa, Ethiopia, were collected and stored for five years at -80 °C. Levels of TC, HDL-C, LDL-C and Triglyceride (TG) were determined using Cobas Integra 400 Plus. Partial t-test, analysis of variance and student’s t-test were used to compare lipid levels of pre and post treatment, treated TB patients with LTB+ and LTB- groups and to calculate atherogenic indices respectively.

Results: TC & HDL-C Values were significantly lower in ATB+ as compared to LTB+ and LTB- (P < .001 for both). Moreover, ATB+ had markedly lower TG and LDL-C than did LTB+ (P < .001 for both) and LTB+ (P < .05) for TG and P < .01 for LDL-C. Notably, alterations of lipid profiles (TC, TG, LDL-C and HDL-C) were seen between LTB+ and LTB- groups with no significant difference between them. After 6 month of treatment, significant increases were observed in TC (P < .0001), LDL-C (P < .05) and HDL-C levels (P < .0001). After treatment, the levels of TC, TG and HDL-C (P < .01 for all) and LDL-C (P < .05) remained significantly lower in TB treated patients when compared to healthy controls. However when we compared the TB treated patients with that of subjects with latent TB infection, there was no significant difference for all lipid profiles between them. The treatment significantly reduced the atherogenic indices TC/HDL-C (P < .05) and log (TG/HDL-C) (P < .01) levels.

Conclusion: Our results show that tuberculosis treatment increases TC levels and normalizes HDL-C when compared to subjects with latent TB infection but still lower than healthy controls. Atherogenic indices were reduced after treatment.
The Prevalence of Extended Spectrum Beta-lactamase Producing Entrobacteriaceae at Adama Hospital, Adama, Ethiopia. Girma Medisse, MSc; Lecturer, Adama Hospital Medical College; Tilaye Workneh, MPH; Godama Jarso, MD; Lakew Gebreselasie, PhD; Teklu Shiferaw, MSc; Wako Abebe, BSc; Adinew Zewdu, BSc; Fekke Belachew, BSc

Introduction. The beta-lactam groups of antibiotics are by far the largest group of antibacterial agents used in clinical medicine and they are among the most frequently prescribed antibiotics worldwide. In line with the wide use and application of these antibiotics, the emergence and spread of drug resistant bacterial pathogens that produce the extended-spectrum β-lactamases (ESBL) are quite a common encounter in clinical practice. However the prevalence of ESBL producing bacterial pathogens varies from institute to institute. In the present study we present the data that we have determined for the prevalence of ESBL producing bacterial pathogens within the Enterobacteriaceae family at Adama Hospital, Adama, Ethiopia.

Material & Methods. Across sectional laboratory based prevalence study was conducted from May 1/2013-June 1/2014. Consecutive non-repeat culture isolates were obtained from different clinical specimens of 384 patients (178 males and 279 females). Antimicrobial susceptibility test was determined by Kirby-Bauer (KB) disk diffusion method. All strains which were found to be resistant for Cefotaxime and Ceftriaxone were selected in order to check the ESBL production of the strains by using the Modified Double Disc Synergy Test (MDDST).

Results. From the clinical samples a total of 133 organisms were isolated of which Entrobacteriaceae were accounted for 68/133 (51.1%). E. coli with 35/68 (51.5%) is the leading isolate among the Entrobacteriaceae. Twenty one isolates from the Entrobacteriaceae were suspected for ESBL production and 17/21 (80.95%) of them were confirmed to produce it. The prevalence of the ESBL producers from the clinical isolates from the urine, surgical wound swab, body fluids and ear discharge were 4/17 (23.5%), 9/17 (52.9%), 3/17 (17.6%) and 1/17 (5.9%) respectively. E. coli with the prevalence of 10/35 (28.57%) is the leading ESBL producer while Proteus species, Klebsiella species, E. cloacae and Citrobacter species accounted for 3/9 (33.3%), 2/8 (25%), 1/3 (33.) and 1/3 (33.3%) respectively. The overall prevalence of ESBL producers with the Enterobacteriaceae is 17/68 (25%).

Conclusion: The routine screening of ESBL producing microorganisms from clinical samples isolates should be done by each clinical microbiology laboratory. This has an important advantage in choosing the appropriate and the right antimicrobial therapy by the physician. The selection and application of the right antibiotic by the physician will have a profound effect in the fight against the development of drug resistance within this group of bacterial pathogens.
Otoscope and Stethoscope: A Vehicle for Microbial Colonization, at Tikur Anbessa Specialized Referral Hospital, Addis Ababa, Ethiopia. Regina Dabzsel, Yimtuhegnath Woldeamanuel, Daniel Atra

Background: In a hospital setting, medical equipment carried by health care workers such as otoscopes and stethoscopes may serve as harbors for microorganisms and may cause nosocomial infection.

Objective: This study was undertaken to determine microbial colonization of otoscopes and stethoscopes used by Health Care Workers at Tikur Anbessa Specialized Referral Hospitals, Addis Ababa, Ethiopia.

Methods: A cross sectional study was conducted from November 2011 to April 2012. After obtaining verbal consent, a total of 130 stethoscopes and 6 otoscopes were swabbed by rubbing the diaphragm and bells of stethoscopes as well as handle and tips of otoscopes with sterile cotton tip applicator moistened in sterile saline. The swabbed sample was inoculated immediately on blood agar and Sabouraud dextrose agar for bacterial and fungal growth respectively.

Results: 136 (130 stethoscopes and 6 otoscopes) were swabbed for this study. The owners of the medical devices were nurses, general practitioners, resident medical doctors, interns and other healthcare workers from different departments. The overall microbial colonization from 136 medical devices sampled was found to be 82 (60.3%). About 111 microbial isolates were identified of which 94/111 (84.7%) were gram positive bacteria, 5/111 (4.5%) were gram negative bacteria and 12/111 (10.8%) were fungi (p<0.05). Staphylococcus aureus and coagulase negative Staphylococi isolates showed low level of resistance against most of the antibiotics tested.

Conclusion: Otoscopes and stethoscopes act as a vehicle for microbial colonization. Therefore, there is a need to evaluate efficacy of recommended cleaning practices in reducing the level of microbial colonization on these medical devices.
Assessment of Microbial Quality of Ready to Eat Foods in Addis Ababa, Ethiopia. Firehiwat Abena Dere, MSc, Tesfaye Legesse, BSc, Redwan Mugejin, BSc, Sasmun Girma, MSc, Yosef Beyene, MSc, Almaz Gonfu, PhD, Tekihi Biza, MSc, Bitrat H/mariam, MSc, Tesfaye Kebede, BSc, Habtamu Tekie, MSc; Ethiopian Public Health Institute.

Background: Food associated diseases have got numerous attentions nowadays since they are found to be a major international health problem and important causes of reduced economic growth. Out of 1.5 billion causes of diarrhea in the world about 70% are thought to be caused by microbial contaminants in foods. The food types which are categorized as ready to eat foods (cooked, processed, final ready to use food products) are also known to play a great role by causing series outbreaks and deaths in the world.

Objective: The objective of this study was to assess the microbial load of Ready to eat foods which were submitted at the public Health microbiology laboratory of Ethiopian Public Health Institute, within the period of 2008 to 2013.

Methods: Ready to Eat (RTE) food samples were submitted to the microbiology laboratory based on the standard protocol within the indicated period of time. All samples were analyzed and checked for the presence of Mold/yeast count, Aerobic plate count, Total coliform count, fecal coliform count and E.coli count, to determine their microbial contamination level. All samples were processed based on American Public Health Association (APHA) protocol for viable bacteria count and the Nordic committee for National Reference laboratory (NMKL) Protocol for the remaining; using a pour plate enumeration culture technique.

Result: a total number of three hundred and fifty two RTE samples were collected from different parts of the country and submitted to the lab based on the Ethiopian MOH rules and regulations. Following these, each sample was analyzed and the results were reported back to the authorized agents accordingly. From all tested RTE samples 60%(210/352) of the samples showed acceptable microbial quality by combination of all parameters, whereas the remaining 40% showed less quality and unacceptable results due to the positivity of one, two or more than two parameters. The highest contamination level was observed by mold count which is 24% (86/352), followed by aerobic viable count 18% (62/352), Total coliform count 12% (43/352), Yeast count 11% (38/352), fecal coliform count 8% (27/ 352) and E.coli count 2.6% (9/352) More than 75% of the samples were collected from Addis Ababa city.

Discussion and Conclusion: It is believed that, Ready to eat foods are a final sterile products since they passed consecutive food cooking or treating processes. However, this is not the fact always and it was also revealed from this study that, moderate numbers of RTE samples were found to be contaminated with different microbial organisms, which showed there was a possibility of contaminating these food stuffs during handling and storage processes. Therefore, the concept of food safety issues regarding to handling of final food RTE products should be given and further consecutive trainings has to be delivered, especially to food handlers and to public and private food processing units. The responsible agent from the government has to regularly control and monitor their output with regard to ensuring the health of children, pregnant women and immuno-compromised individuals.
Prevalence of Intestinal Parasite, Shigella and Salmonella Species among Diarrheal Children in Jimma Health Center, Jimma Southwest Ethiopia: A Cross Sectional Study. Getnet Beyene and Haianmot Tsew Department of Laboratory Sciences and Pathology, College of Public Health and Medical Sciences, Jimma University, Jimma, Ethiopia

Background: Diarrheal disease continues to be an important cause of morbidity and mortality among young children in developing countries including Ethiopia. Globally, intestinal parasite, Shigella and Salmonella species remain major contributors to acute enteric infections.

Objective: The study was aimed at determining the frequency of intestinal parasite, Shigella and Salmonella species identified from diarrheic children at Jimma Health Centre, Jimma south west Ethiopia.

Methods: A health institution based cross sectional study was conducted from March to November 2012. A structured questionnaire was used for collection of data on socio- demographic characteristics. Data were entered and analysed using SPSS version 16.0 computer software. Parasite and bacteria identification as well as susceptibility testing was done using standard parasitological and bacteriological procedures.

Results: A total of 260 diarrheal children were included in the study. A total of 129 (49.6%) samples were positive for intestinal parasite, Shigella and Salmonella species. Of these, 107 (41.1%), 6 (2.3%) and 16 (6.2%) samples were positive for intestinal parasite, Shigella and Salmonella species respectively. The dominant isolated parasite was G. lambia with prevalence of 13.5% followed by A. lumbricoides (11.5%). The least identified parasites were Schistosoma mansoni and Taenia species accounting 0.4% each. Multiple parasitic infections were observed in 19 (7.3%) patients. Shigella species showed hundred percent resistances to ampicillin, amoxacillin, and cotrimoxazole. All Salmonella isolates were resistant against amoxicillin. All Shigella and Salmonella species were susceptible to ceftriaxone, ciprofloxacine and gentamycin.

Conclusion: The presence of reasonably high amount of intestinal parasite and Salmonella and Shigella species that are drug resistance to the commonly prescribed drugs is a treat to the children and community at large. Therefore, measures including health education, improvement of safe water supply, sanitation facilities and continuous monitoring of microbiological and antimicrobial surveillance is crucial.

Keywords: Intestinal parasite, Shigella, Salmonella, Susceptibility test, Jimma, Ethiopia.
Childhood Diarrheal Diseases and Associated Factors in the Rural Community of Dejen District, Northwest Ethiopia, 2014. Demeksu Getu1, Molla Gedefaw2, Nurilign Abebe3, Debre Markos University and GAMBY College of medical sciences joint MPH program, department of public health, Debre Markos, Ethiopia 2GAMBY College of medical sciences, department of public health, Bahirdar, Ethiopia 3Debre Markos University College of medicine and health sciences, department of nursing, Debre Markos, Ethiopia

Background: Diarrheal diseases are among the three most important causes of morbidity, and mortality in low income countries including Ethiopia. Lack of sanitation facilities is a serious health risk and obliges people to practice open defecation, thereby increasing the risk of disease transmission. These problems are clear at Dejen district where childhood diarrheal disease is the top cause of morbidity among under five children.

Objective: The aim of this study was to assess prevalence of childhood diarrheal diseases and associated factors in the rural community of Dejen district, northwest Ethiopia, 2014.

Method: A community-based cross-sectional study was conducted. Five of the 21 rural kebeles in the district was selected randomly, finally 710 households were chosen by systematic random sampling using existing list of all households as a sampling frame. Data was collected using pre-tested WHO core questionnaire that was designed to explore factors related to diarrhea. Data enter and analysis was carried out using SPSS version 20. The level of association was dealt using confidence interval and odds ratio.

Result: the study conducted among 710 participants with response rate of 96.4% shows that, the prevalence of diarrhea was 23.8%. Tube well water source (AOR: 2.59,95%CI(169,3.95)), throwing away disposal of feces (AOR:1.58,95%CI(1.10,2.26)), mother’s used hand washing with practice only water (AOR: 1.61,95% CI(1.04,2.84)) and having not supplemented with vitamin A (AOR: 1.92,95% CI(1.35,2.74)) were significantly associated with diarrhea.

Conclusion and Recommendation: the prevalence of childhood diarrhea is high at Dejen district. Tube well source of water, throwing away disposal of feces, poor hand washing practice of the mother and lack of vitamin A supplementation were significantly associated with childhood diarrheal disease. The District and Zonal water office should increasing access of piped water in rural areas. The District and Zonal health office should improve awareness of the community on hand washing practice and on proper utilization of latrine to dispose excreta should be given a concern and Vitamin Supplementation to every child in the district should be strengthened.

Keywords: children; diarrheal disease; rural district; Dejen; Ethiopia
Determinants of Diarrheal Diseases Occurrences among Under Five Children in Debre Berhan Town. Asmamaw Abraha Kebede, BSc in Environmental Health and MSc in Environmental Technology, Lecturer and Researcher at Debre Berhan University Department of Public Health; Tilahun Abebe, MS; PhD Candidate, Lecturer at Department of Biology Debre Berhan University; Wondwosen Asgedew, MPH Lecturer at Department of Public Health, Debre Berhan University.

Diarrhea is one of the most common causes of morbidity and mortality among children in developing countries including Ethiopia. In Ethiopia, it is estimated that in every five children born one die from diarrheal before the fifth birthday. Its cause is multifactorial. The study was designed to assess determinants of diarrheal diseases occurrences among under five children (U5C) in Debre Berhan Town. A community based cross sectional study was conducted from February to March 2011 in Debre Berhan town. A total of 312 households having U5C were selected randomly. Data was gathered through interview of mothers/care givers using a pre-tested questionnaires and observational checklist by trained data collectors. Descriptive statistics, Pearson Chi-square test and logistic regression analysis were used with 95% CI at P<0.05. The finding of this revealed that the overall two-week prevalence of the diarrhea among U5C was 12.2%. Many of the potential risks of diarrhea considering in this study. Sociodemographic, environmental and behavioral factors did not appear as significant determinants. A logistic binary regression analysis showed that maternal education (COR: 5.46, 95% CI: (1.32, 22.58)), hand washing habits of mothers (COR: 4.64, 95% CI: (1.35, 15.97)) and feces seen on the slab of latrine (COR: 4.71, 95% CI: (1.41, 15.75)), were significantly associated with the occurrence of diarrheal disease. However after logistic regression adjustment, in multivariate analysis only mothers hand washing habits (AOR: 0.21, 95% CI: (0.04, 0.50)) and feces seen on the slab (AOR: 0.33, 95% CI: (0.14, 0.69)) were founded to be a significant predictors of diarrheal morbidity in children. Thus, developing behavioral changes on sanitation practices is an effective intervention strategy for diarrheal diseases. This can be addressed through the promotion of hygiene education for the community.

Keywords: Children; Diarrhea; Determinants; Mothers/Caregivers
Prevalence and Intensity of *Schistosoma Mansoni* Infections in Primary Schools in Jimma Town. Mitiku Bajiro1, Zeleke Mekonnen1, Daniel Danel1 Bruno Lecureux2, Joos Verreyt21Department of Medical Laboratory Sciences and Pathology, College of Public Health and Medical Sciences, Jimma University, Ethiopia, 2Department of Virology, Parasitology and Immunology, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

**Background:** Schistosomiasis is a neglected tropical parasitic disease caused by different *Schistosoma* species, including *S. mansoni*. Globally 500 to 600 million people are at risk of infection and 200 million peoples are infected, of which the majority of the cases occur in African countries. Although schistosomiasis is prevalent in Ethiopia, up-to date on *S. mansoni* infections in Jimma Town is scarce.

**Methods:** We conducted a cross-sectional study to determine the prevalence and infection of *Schistosoma mansoni* infections in 17 primary schools in Jimma Town. To this end, we screened approximately 60 school children, resulting in a total sample size of 1000. To capture the variation across age school children were stratified according to age (A= 20 children 5-9 years, B=20 children 10-14years and C=20 children15-18years). All samples were processed with a single Kato-Katz thick smear.

**Results:** The prevalence and infection intensity of *S. mansoni* for the schools, two sexes, and three age classes. Infections with *S. mansoni* were observed in 85 out of the 1,000 subjects screened (8.5%). *S. mansoni* infections were found in all 17 schools participating on this study. However, between schools there was a large variation in prevalence, ranging from 1.7 to 26.7%. Male subjects (n = 501, 3.6%) were likely to be more infected compared to female subjects (n = 499, 13.4%). The prevalence of infections increased in function of age, increasing from 3.2% in age class A (n = 314), over 8.0% in age class B (n = 375) to 14.5% in age class C (n = 311). The majority of the infections were classified as low (n = 50, 5%). Moderate and high levels of infection were only observed on 35 out of 1,000 subjects screened (3.5%). The mean FEC equalled 17 EPG (n = 1,000).

**Conclusions & Recommendation:** The overall prevalence of *S. mansoni* among school children was 8.5% and male students are more infected. Students with higher age groups are more infected than lower age groups and the highest EPG was 1968. The highest prevalence of *S. mansoni* was observed in higher age group and the least was lower age group. The highest frequency *S. mansoni* was observed in schools which were near to water body. Health education has to be given to school age children and the communities regarding the way of transmission, prevention and control of *S. mansoni* infection.
Immunization Coverage and Associated Factors Among Children Aged 12-23 Months in Lay Armachiho District, North Gondar Zone, Northwest Ethiopia.

Melkamu Beyene, Kassahun Gashaw Andargis Biks, Alemayehu Shimeka Teferra.

Introduction: Immunization against childhood diseases is one of the most important public health interventions as cost effective means of preventing childhood morbidity, mortality and disability. Achieving and maintaining high level immunization coverage must therefore be a priority for health systems. Data of immunization coverage serve as an indicator of health program strength and capacity to delivery essential services. Therefore assessing immunization coverage and factors affecting it helps to evaluate progress in achieving programmed objective, improving service delivery, provide evidence on substantial progress toward achieving vaccination targets.

Objective: The aim of this study was to assess immunization coverage and associated factors in Lay Armachiho District, North Gondar zone, Northwest Ethiopia.

Methods: A community based cross-sectional study was conducted in March, 2014 among 751 pairs of mothers to children aged 12-23 months in Lay Armachiho District. Two stage sampling technique were employed. Bi-variate and multivariate analysis was carried out to compute relevant association between factors and fully immunization status of children. All variables that were found to be significant at p value 0.2 in the bi-variate analysis was entered in to multiple logistic regression model. Finally back ward stepwise regression method was used and those variables significant at p-value 0.05 were considered statistically significance.

Results: About 76.03% of the children were fully immunized based on vaccination card and mothers recall during the study period. Dropout rate was 6.5% for BCG to measles, 2.7% for Penta1 to Penta3 and 4.5% for Pneumonia1 to Pneumonia3. The likelihood of children to be fully immunized among mothers who identify the number of sessions needed for vaccination were higher than those who did not [AOR=2.857(95%CI=1.926, 4.239)]. Moreover, coverage of full immunization status of children were higher among mothers who know the age at which the child become fully immunized than who did not know. [AOR=2.911(95%CI=2.004, 4.229)]. Taking TT immunization during pregnancy showed statistically significant association with full immunization of children [AOR 1.651(95% CI=1.049, 2.600)]. Urban children were more likely to be fully immunized than rural [AOR=1.852(95%CI=1.167, 2.938)] and being male were more likely to be fully immunized than female [AOR=1.849(95%CI=1.289, 2.652)].

Conclusion and Recommendation: Vaccination coverage was low compared to the MDG target. Hence, it is important to increase and maintain current immunization level. Efforts should be made to promote women’s awareness at on TT immunization, when the child should start vaccination, number of sessions needed to complete immunization, and when a child become fully immunized to improve immunization coverage through health development army and health professionals working at ANC, PNC and immunization units.

Keywords: Immunization coverage, Lay Armachiho district, children aged 12-23 months, Ethiopia.

Background: Worldwide diarrheal morbidity is the second leading cause of death in under-five year’s age children. In Ethiopia diarrheal disease kills half million under-five children’s age every year. Poor sanitation, unsafe water supply and inadequate personal hygiene are responsible for 90% of diarrheal incidence. As health service, the Ethiopian government was designed health extension program as a means of providing comprehensive, universal, equitable and affordable health service. As a strategy of the program, households has been graduated as model families after getting a training & implementing majority of the health extension packages. Therefore the purpose of this study was to assess risk factor of diarrheal morbidity in under-five children’s age among health extension model and non-model families.

Method and Subjects: A community based comparative cross-sectional study design was conducted in 2012 at Sheko district. A multistage sampling technique was used to select 825 (275 model and 550 non-model) households that had at least one under-five children’s age. Data was collected using adapted and pre-tested structured questionnaire and/or checklist by trained eleven diploma holder data collectors. A summery descriptive statistics was computed and variables in a binary screening found at p-value ≤ 0.25 were further considered into multiple logistic regression analysis to describe the functional independent predictors of childhood diarrheal morbidity. Homogeneity tests were assessed among independent predictors and household condition for health extension program (model or non-model). The study was ethically approved by the health research and post graduate coordinating office, college of Public health and medical science of Jimma University.

Result: The prevalence of two weeks diarrheal morbidity in under-five children’s age among health extension model and non-model households were 6.4% and 25.5%, respectively. The independent predictors of childhood diarrheal morbidity revealed in this study were being mothers can’t read and write [OR: 1.74, 95% CI: (1.03, 2.91)], monthly family income earn less than 650 Birr [OR: 1.75, 95% CI: (1.06, 2.88)], mothers hand washing not practice at critical time [OR: 2.21, 95% CI: (1.41, 3.46)], not soap use for hand washing [OR: 7.40, 95% CI: (2.61, 20.96)], improper refuse disposal [OR: 3.19, 95% CI: (1.89, 5.38)] and being non-model families by health extension program [OR: 4.50, 95% CI: (2.52, 8.03)]. Furthermore, hand washing, soap use, and refuse disposal practice among the two families were significantly different in practice.

Conclusion: the prevalence of two weeks diarrhoeal morbidity in under-five children’s age was significantly higher among non-model families than model families. The level of morbidity variation was well explained by maternal education can’t read and write, family income earn less than 650 Birr, mothers hand washing not practice at critical time with soap, poor refuse disposal waste and the effect of health extension program being non-model families. Thus encouraging families to being model families by health extension program and designing community based behavioral change communication that emphasize on personal hygiene and sanitation should be strengthening to reduce childhood diarrheal morbidity.
Effect of Early and Current Exposure to *Helicobacter pylori* on the risk of childhood anemia among young Ethiopian children. Bineyam Taye1,2*, School of Public Health, Addis Ababa University; Fikre Enquaselassie1, Aster Tesfaye1, Alemayehu Amberbir1, Girmay Mehdin1, Charlotte Hanlon1, Andrew Fogarty1, Gail Davey1

**Background:** Epidemiological and clinical studies in high income countries have suggested that *Helicobacter pylori* (H. pylori) may cause anaemia, but evidence is lacking from low income countries.

**Objective:** We examined associations between exposure to *H. pylori* in early childhood and anaemia at the age of 6.5 years in an Ethiopian birth cohort.

**Methods:** In 2011/12, 856 children (85.1% of the 1006 original singletons in a population-based birth cohort) were followed up at age six and a half. An interviewer-led questionnaire administered to mothers provided information on demographic and lifestyle variables. Haemoglobin level and red cell indices were examined using an automated haematological analyzer (Cell Dyn 800, Abbott, USA), and stool samples were analyzed for *H. pylori* antigen. The independent effects of exposure to *H. pylori* (measured at age 3.5 and 6.5 years) on anaemia, haemoglobin level, and red cell indices (measured at age 6.5 years) were determined using multiple logistic and linear regression.

**Results:** The prevalence of anaemia was 34.8% (257/739), and the mean (SD) haemoglobin concentration was 11.8 (1.1) gm/dl. Current exposure to *H. pylori* at age 6.5 years was positively, though not significantly related to prevalence of anaemia (adjusted OR, 95% CI, 1.15; 0.69, 1.93, p=0.59). Any exposure to *H. pylori* up to age 6.5 years was significantly associated with an increased risk of anaemia at age 6.5 (adjusted OR, 95% CI, 1.68; 1.22, 2.32, p=0.01). A significant reduction in hemoglobin concentration and red cell indices was also observed among children who had any exposure to *H. pylori* up to age 6.5 (Hb adjusted β = -0.19, 95% CI, -0.35 to -0.03, p=0.01; MCV adjusted β = -2.22, 95% CI, -3.43 to -1.01, p=0.01; MCH adjusted β = -0.63, 95% CI, -1.15 to -0.12, p=0.01; and MCHC adjusted β = -0.67, 95% CI, -1.21 to -0.14, p=0.01), respectively.

**Conclusion:** This study provides further evidence from a low income country that any exposure to *H. pylori* up to age 6.5 is associated with higher prevalence of anaemia, and reduction of haemoglobin level and red cell indices at age 6.5.

**Recommendation:** Further investigation of the natural history of *H. pylori* infection will be crucial to understanding its manifestations in young children from developing countries, and to develop treatment guideline for *H. pylori* infected children with unexplained anaemia.

**Keywords:** *Helicobacter pylori*, anaemia, red cell indices, birth cohort, Ethiopia
Survival and Predictors of Neonatal Mortality in Tigray Region, Northern Ethiopia: Prospective Cohort Study. Hayekom Gebrekirsos1, Aleme Desta1, Wondwosen Terefe1, Tesfay Haile11Department of Public Health, College of Health Sciences, Mekelle University 2Department of Pharmacy, College of Health Sciences, Adigrat University

Background: Neonatal mortality accounts for an estimated 4 million deaths worldwide; each year constitutes 40% of under-5 mortality and approximately 57% of infant mortality. An increasing number of the remaining child deaths [in Ethiopia] are attributed to newborn deaths – those in the first 28 days of life. Tigray region neonatal mortality which is 44 per 1000 births is higher than the country level average which is 37 per 1000 births. Since predictors of neonatal death vary by country and with the availability and quality of health care, understanding of neonatal mortality in relation to these predictors in the study area is crucial.

Objective: To estimate survival time and identify predictors of neonatal mortality in Tigray region, Northern Ethiopia.

Methods: A prospective cohort study design was conducted among cohorts of neonates who were delivered in randomly selected hospitals of Tigray region from April 2014-July 2014 and followed for 28 days. There were a total of 1152 neonates enrolled in the study. Data was collected by interviewing mothers using structured questionnaire and filling a checklist for variables obtained from secondary records. Data were entered, cleaned and analysed using STATA statistical software version 11.1. Kaplan-Meier was used to estimate Survival time and Cox proportional hazard regression used to identify the potential predictors.

Result: Out of the total neonates enrolled to the study (1152 neonates), 68 neonates were died and 60 neonates were loss to follow up. The neonatal mortality rate was 62.5 per 1000 live births. The Incidence rate of death were 2.5 (95% CI: 1.6, 2.7) per 1000 person days. The survival probabilities of neonates at the end of 28 days was 93.96% (95% CI: 92.38, 95.21%). Multivariate Cox regression revealed that predictors of neonatal mortality were, normal birth weight (AHR = 0.45, 95% CI: 0.24, 0.84), not initiating exclusive breast feeding (AHR = 7.5, 95% CI: 3.77, 15.05), no neonatal complications after birth (AHR: 0.04, 95% CI 0.074, 0.29), no delivery related complication of the mother (AHR: 0.37, 95% CI: 0.22, 0.63) and distance to nearest health facility (AHR: 2.5, 95% CI: 1.29, 4.91).

Conclusion and Recommendation: Neonatal mortality is unacceptably very high. Hence, rapid interventions should be done that focus on managing neonatal and maternal complications, birth weight; early Initiation of breast feeding, increasing access to health facility and improving the quality of services given by skilled birth attendants.

Keywords: Survival, neonatal mortality, Tigray, Ethiopia.
Prevalence of Rotavirus and Associated Risk factors among Under Five Children with Gastroenteritis in Addis Ababa, Ethiopia. Mekonen Getahun, MSc³, Kassu Desta, PhD Candidate³, Birhane Beyene, MSc Surafel Fantau, MSc⁴, Yeshewondu Mamuye, MSc⁴, Daniel Mekonnen, MSc⁴, Adinew Desale, MSc⁴, Almaz Abebe, PhD¹ 'Ethiopian Public Health Institute (EPHI), ² Addis Ababa University, School of Allied Health Science Department of Laboratory, ³ St. Paul's Hospital Millennium Medical College, ⁴ Babir Dar University, CMHIS, DMIP

**Background:** Rotavirus is the most common cause of severe gastroenteritis among under five children worldwide. Ethiopia is one of the five countries with the greatest rotavirus burden worldwide and accounts for 6% of all rotavirus deaths globally. Thus, the aims of this study was to determine the prevalence of rotavirus and associated risk factors among under five children with gastroenteritis in Addis Ababa, Ethiopia.

**Methods:** A cross-sectional, hospital based prospective study was conducted from January–March 2014. A total of 246 children with gastroenteritis were consecutively selected. Stool specimens were collected and investigated for rotavirus by using EIA method. Care givers were interviewed using structured and pre-validated questionnaire. Data was analyzed using SPSS version 20 software.

**Result:** Among a total of 246 studied children, 85 (34.6%) children were positive for Rotavirus antigen, 31.3% and 26.4% had bacterial infection and protozoan parasites respectively. Rotavirus infection was not found significantly associated with any possible risk factors in this study. In addition, *E. coli* was the most frequent bacterial isolate and *Entamoeba* was the most frequently identified parasite.

**Conclusion:** The prevalence of Rotavirus diarrhea was high in the study setting. Therefore, large scale survey should be conducted in all regions to know the actual disease burden throughout the country and vaccination campaigns should be strengthened.
Early Initiation of Complementary Feeding and Associated Factors among 6 Months to 2 Years Young Children, in Kemb a Woreda, South Ethiopia. Eskerwyn Agedaw.

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Introduction: Infants are particularly vulnerable to malnutrition and infection during the transition period when complementary feeding begins. After six months breast milk alone is not sufficient, in quantity and quality to maintain the growth and development requirements of the infant. Therefore timely introducing complementary food is essential for growth and wellbeing of young child. Early introduction of complementary feeds before the age of six months can lead to displacement of breast milk and increased risk of infections such as diarrhea, which further contributes to weight loss and malnutrition and it contributes to 24% of infant deaths. Despite few local studies conducted in different parts of the country, no sufficient study tried to measure prevalence and identify the determinants of early initiation of complementary feeding in the this study area.

Objective: To assess early initiation of Complementary feeding and associated factors, in Kamba Woreda, Southern Ethiopia.

Methods: Community based cross sectional study was conducted in Kamba Woreda. The study was conducted on 562 mothers who had young child from 6 months to 2 years from in December 2013 by using pre tested and structured questionnaire. Bivariate and multivariate analysis was conducted by SPSS version 20. P value less than 0.05 was considered as significant.

Results: From all interviewed respondents, 59.4% (59.56-59.64) started complementary feeding early before six months and 40.6% (40.36-40.44) started complementary feeding at six months. Majority of mothers (92%) start complementary feeding by liquid and semi solid (Porridge) diet for their child and the rest 4% fed bottled feeding, 3.9 % special prepared diet for child only and 1.6% family diet. Age of mothers those are in age group ≥30 years AOR 2.60(1.07-6.35), Education level those who have no formal education AOR 2.76(1.63-4.69), occupational of mothers those who work as daily workers AOR 3.06(1.03-9.12) and Private work activity(merchant, farmers) AOR 2.39(1.61-3.53), Mothers who have no post natal follow up AOR 1.64(1.05-2.55), and who did not have Growth monitoring follow up for their child in Health facility 1.95(1.19-3.17)) were significantly associated factors for early initiation of complementary feeding before six months in the study area.

Conclusion and Recommendation: A large proportion of mothers start early complementary feeding before 6 months, despite what is recommended in the national and global infant and young child feeding guidelines. Maternal age, educational statues, occupational statues and mothers who has no PNC, growth monitoring and mothers who encountered illness at post natal period were significant predictors for early initiation of complementary feeding. Mothers who work outside home adopt workplace breastfeeding practices and breast milk expression in cup and Health professionals. Health professional should give focus to advice and counsel for mothers on timely initiation of complementary feeding during prenatal, delivery and post natal period and mothers should be motivated on Exclusive breast feeding practice. Therefore mothers should be motivated to attain post natal and anti natal follow up and extending maternal leave for government workers and adapting breast expressive breast feeding practice in home to improve exclusive breast feeding.
Duration of Breast Feeding and Factors that Affect Cessation of Breastfeeding in Ethiopia. Melkamu Molla, MSc, Lecturer, Jigjiga University, Ethiopia and Lekeameriam Berhe, PhD.

The purpose of this study was to assess the duration of breastfeeding among women of reproductive age in Ethiopia and to identify determinants associated with early cessation of breastfeeding. Data for the study were drawn from the Ethiopia Demographic and Health Survey 2005. The study included mothers of 9,066 children from nine Regional states and two city administrations. The Kaplan-Meier and Stratified Cox's proportional hazards model were employed for the analysis of breastfeeding-related data. The Kaplan-Meier survival estimate showed that the probability of mothers who continue to breastfeeding was high (97.3%) for the first month. The breastfeeding rates then declined to 92.5% at 6 months, 78.4% at 12 months, 37% at 24 months and 8.3% at 48 months. The mean and median duration of breastfeeding in Ethiopia were 25.64 and 24.00 months respectively. The stratified Cox regression analysis revealed that current age of mother, place of residence, mother education, parity, current pregnancy and religion were significant determinants of early cessation of breastfeeding in Ethiopia. Younger mothers, mothers who had lived in urban area, mothers having higher education, higher maternal parity, early pregnant and being a Muslim and protestant were associated with lower duration of breastfeeding. Then, we suggest that the breastfeeding-promotion programs in Ethiopia should give special attention to young mothers, those who lived in urban areas, mothers with higher education, those who have higher parity, those who have early pregnancy and those who are Muslims and Protestants since these mothers tend to breastfeed their children for a relatively shorter period of time.

**Keywords:** Duration of Breastfeeding; determinants; Kaplan-Meier estimator; Cox regression model; Ethiopia
Intestinal Parasitosis and Associated Factors among Elementary School Children, in Mizan Aman, Southwest Ethiopia. Ayalew Jejau1, Zemenu Mengistie1, Yeyebrad Alemu1 1Department of Biomedical Science, College of Health Sciences, Mizan Tege University, Mizan Teferi, Ethiopia 2Department of Public Health, College of Health Sciences, Mizan Tege University, Mizan Teferi, Ethiopia.

Background: Intestinal parasites have a great public health importance in Ethiopia. Although their distributions in this country are cosmopolitan, studies showed that the magnitude varies with respect to time, place and type of study population. Moreover, there is scarcity of information about such infections in Mizan Aman town.

Aims: To determine the prevalence of intestinal parasitic infections and their associated factors among Mizan Aman town elementary school children, Southwest Ethiopia.

Methods: School based cross-sectional study was conducted in Mizan Aman, Ethiopia, between May 2013 and June 2013. Multistage sampling technique was employed for participant selection. Stool specimens were examined microscopically using direct and formol-ether concentration methods. Families / serrotes of children were interviewed with semi-structured questionnaire for different variables. Descriptive statistics and binary logistic regression analysis were performed during data analysis.

Results: During this study a total of 460 participants (100% response rate) were involved and the prevalence of intestinal parasitosis was found to be 76.7%. Eight types of intestinal parasites (S.mansoni=44.8%, A.lumbricoides=28.7%, T.trichiura=18.7%, G.lamblia=4.6%, E.histolytica/dispa=3.3%, H.nana=3.3%, Taenia spp=2.2%and S.stercoralis=2%) were isolated. Children with in 8-11 and more than 11 years of age had decreased risk of intestinal parasitosis by 73% (AOR = .269, 95% CI =.151,.478) and by 78% (AOR = .222, 95% CI =.110,.444) compared to those who were less than 8 years of old. Moreover, habit of eating uncooked vegetables (AOR=2.988, 95% CI=1.795, 4.972), walking on bare foot (AOR=1.892, 95% CI=1.122, 3.193), bathing in river (AOR=2.471, 95% CI= 1.505, 4.059), using spring as source of drinking water (AOR=2.858, 95% CI=1.067, 7.654), and habit of eating street sold food (AOR=2.200, 95% CI=1.382, 3.503) were significantly associated with intestinal parasitosis.

Conclusion: The prevalence of intestinal parasitic infections is high with multiple associated factors. This indicates that they are among the major health problems in the study area. Thus, an integrated prevention and control measures should be undertaken.

Keywords: Associated factor, Intestinal parasites, children, Mizan Teferi, Ethiopia
Prevalence of Diarrhea and Associated Risk Factors among Children Under-Five Years of Age in Wolitta Soddo Town, Southern Ethiopia. Kedir Astden, BSc, MPH.

Introduction: Though the relationship between environmental risk factors and the occurrence of diarrhea in children have been documented elsewhere, there are limited studies in Ethiopia in general and in Soddo Town in particular. The present study assessed the prevalence and associated risk factors of under-five children diarrheal disease.

Method: Community-based cross-sectional study was conducted in Soddo town, Southern Ethiopia. Nine hundred seventy (970) mothers/ care takers of index under-five children living in the households selected by systematic random sampling from Kebeles in the town constituted the study population. Data were collected using structured and pre-tested questionnaire, entered into a computer, edited and cleaned by using Epi info version 3.5.4 and analyzed using SPSS for windows version 16.0. Binary logistic regression model was used to calculate the Odds ratios and 95% confidence interval for the different risk factors and the level of significance was set at P < 0.05.

Results: Out of 970 sampled mother/caregiver-child pairs, 954 participated in the study and giving a response rate of 98.4%. The mean ages of the respondents and the index children were 27.62 (±5.03SD) years and 26.41(±15.89 SD) months, respectively. Prevalence of diarrheal disease over a period of two weeks preceding the study was about 11%. In the Bivariate analysis, a number of risk factors including monthly income less than five hundred birr and age of the child (P<0.05) appeared to be significantly associated with under-five childhood diarrheal disease and number of siblings under 5 years in a household, monthly income less than 500Birr and the age 12-23 months of the child were the only significant variables on multivariate analyses (P< 0.05).

Conclusion: As diarrheal disease was major problem among under-five children in Soddo town. Appropriate intervention programs targeting Child birth spacing and improving the monthly income of households should be designed.

Keywords: Diarrhea, Associated factors, Under-five children, Ethiopia
Perinatal Mortality Magnitude, Determinants and Causes in West Gojam: Population-Based Nested Case-Control Study. Rabeb Yirgu, (BSc, MPH), School of Public Health Addis Abeba University; Mitike Molla (PhD, MPH, BA, RN), Assistant Professor, School of Public Health College of Health Sciences, Addis Abeba University; Lynn Sibley (PhD, RN, CNM), Professor, Neil Hodgson Woodruff School of Nursing, Rollins School of Public Health, Emory University; Abebe Gebremariam, MD, Pediatrician, Project Director and Co PI Emory, University, Maternal and Newborn Health in Ethiopia Partnership (MaNHEP)

Introduction: Even if a significant reduction in child mortality was seen, perinatal mortality is still high. This study estimated the rate and identified major determinants and causes of perinatal death in Northern Ethiopia.

Methods and Materials: Out of the 4097 pregnant mothers who were followed in the cohort of this nested case control study, 102 cases and 204 controls were identified and interviewed in three districts of the West Gojam zone, from Feb 2011 to Mar 2012. Factors such as birth spacing, history of abortion and perinatal mortality were included in multiple binary logistic regression models to find risk factors. Physician review method was used to identify causes of death from verbal autopsy data.

Result: The perinatal mortality rate was 25.1(95% CI, 20.3, 29.9) per 1000 live and stillbirths. Perinatal mortality was significantly associated with two socio economic variables; wealth of family and family size. Families with a size of more than two had a lesser risk for perinatal mortality as compared to those with a size of only two. More primiparous mothers lost their newborns to perinatal mortality than mothers who gave birth to five or more children (AOR=3.15, 95% CI 1.03-9.60). In addition women who previously lost their newborns for perinatal death showed a higher risk of perinatal mortality during their last pregnancy (AOR=9.55, 95% CI 4.67, 19.54). Preterm newborns were more at risk for perinatal death (AOR=9.44, 95% CI 1.81, 49.22) than term babies. Eccentrically, home delivery was found to protect against perinatal death (AOR=0.07 95% CI 0.02, 0.24) in comparison to institutional delivery. Bacterial sepsis, birth asphyxia and obstructed labour were among the leading causes of perinatal death.

Conclusion: Perinatal mortality rate remains considerably high, but proper maternal and child health care services can decrease the burden.

Keywords: Perinatal mortality, Stillbirths, Early neonatal mortality, Nested case control, West gojam, Ethiopia.
Exclusive Breast Feeding and Maternal Employment a Comparative Study among Employed and Non Employed Mothers. Mekonnen Taddele, MPH, Lecturer, Debremarkos; Netsanet Fantahun, MPH, Assistant Professor; Lakew Abebe, MPH, Assistant Professor.

Background: Promotion of exclusive breastfeeding is the single most cost-effective intervention to reduce infant mortality in developing countries. Exclusive breastfeeding for the first six months has greater benefit than formula feeding for the prevention of mother to child transmission of HIV. In Ethiopia, the prevalence of exclusive breast feeding among infants less than 6 months is 49%, with limited information on associated factors of exclusive breast feeding.

Understanding the associated factors that influence exclusive breastfeeding is crucial to promote the practice in Ethiopia.

Objective: To compare exclusive breastfeeding and its associated factors among employed and unemployed mothers in Injihara Town, Awi Zone, North west Ethiopia.

Method: A community-based comparative cross-sectional study was conducted from March 24-
April 14, 2013. A total of 524 mothers of children age ≤1 year were included in the study. A structured, pretested and self-administered questionnaire was used to collect data. Descriptive statistics were performed to compare exclusive breastfeeding among employed and unemployed mothers. Multiple logistic regression analysis was conducted to identify independent predictors of exclusive breastfeeding.

Results: The prevalence of exclusive breastfeeding was 44% and 65% among employed and unemployed mothers respectively. Employed mothers were 32% times less likely to breast feed exclusively than the unemployed mothers (OR= 0.32). Place of birth (OR=4.4), belief of breast milk sufficiency (OR= 3.6), religious fathers support of exclusive breastfeeding (OR=2.7) and maternal age of 18-23(OR=9.4) were independently predictors of exclusive breastfeeding among employed mothers. Whereas, husbands’ support of exclusive breastfeeding (OR=1.9), knowledge on duration of exclusive breastfeeding (OR=2.8), timely initiation of breastfeeding (OR=2.9), Awareness of exclusive breastfeeding (OR=2.2) and delivery attendance (OR=2.2) were independently predictors of exclusive breastfeeding among unemployed mothers.

Conclusions: A large proportion of infants are not exclusively breastfed. Exclusive breastfeeding status of unemployed mothers was significantly better than that of employed mothers. Therefore, the government should promote exclusive breastfeeding by creating breastfeeding friendly working environment.

Key terms: Exclusive breast feeding, Maternal Employment.
Assessment of Child Immunization Coverage and its Determinants in Sinana District, Bale Zone, Oromia Regional State, Ethiopia, 2013. Worku Debraessa Hagaj, MPH, College of Medical and Health Sciences, Wollega University.

**Background:** Immunization remains one of the most important public health intervention and cost effective strategy to reduce child mortality and morbidity associated with infectious diseases and is estimated to avert between 2 and 3 million deaths each year. Little is known in study area about vaccination coverage and its determinant. Accordingly, this study was conducted with the intention of filling these gaps by identifying the child immunization coverage and factors associated with full immunization.

**Methods:** A cross-sectional community based survey was conducted in 6 kebeles of Sinana District from 29, December 2012 –16, January 2013. A modified WHO EPI cluster sampling methods was used for household selection. Data on 591 children aged 12-23 months and mothers pair was collected by using a pre-tested interviewer administered structured questionnaire through house to house visits from vaccination card and mother’s verbal reports. Bivariate and multivariate logistic regression analyses were used to assess factors associated with fully immunization coverage of children.

**Results:** Among 591 interviewed mothers’ of children, only 10.2% of the mothers have attended secondary and above level of education. Of children included in this study, only 33% of them had vaccination card at time of the survey and about 76.8% of the children aged 12-23 months were fully vaccinated by card plus history. Factors significantly associated with full immunization were antenatal care follow-up (adjusted odds ratio (AOR = 3.7, 95% CI: 2.3- 5.9), mother occupation being farmer (AOD=1.9, 95% CI:1.14-3.1), educational level of father being secondary and above (AOD=3.1, 95%CI:1.3-7.4), household family income greater than one thousand(AOD=3.2, 95% CI:1.4-7.4), average walking time less than an hour(AOD=2.1, 95% CI:1.1-3.1),ever discuss about immunization with health service extension worker(AOD=2.4, 95%CI:1.32-4.2) and mother’s sufficient knowledge on immunization(AOD=2.5, 95% CI 1.5-4.2).

**Conclusion:** Maternal Health care utilization and knowledge of mother about vaccine and Vaccine Preventable Diseases are the main factors associated with complete immunization coverage. It is vital that, local programmatic intervention should be strengthened to upgrade awareness of the community on the importance of immunization, antenatal care and working on advancing economical status of community is the way to optimize children’s immunization coverage.
Group Astreptococcal Infection among Children with Pharyngitis in Jimma Town, Southwest Ethiopia. Getnet Tesfaw Tadle, MS\textsuperscript{a, b}, Gebre Kibra Tiga, MS\textsuperscript{a}, Demeku Mekonnen Mengiste, MD\textsuperscript{a}, Alemseged Abdissa Lenco, PhD\textsuperscript{b} \textsuperscript{1}Department of Medical Laboratory Sciences and Pathology, College of Public Health and Medical Sciences, Jimma University, Jimma, Ethiopia \textsuperscript{2} Department of Pediatrics, College of Public Health and Medical Sciences, Jimma University, Jimma, Ethiopia.

Background: Group A Streptococcus (GAS) is an important cause of morbidity and mortality with clinical presentation ranges from pharyngitis and pyodrhea, to life threatening immunological complications such as acute rheumatic fever and glomerulonephritis. GAS is the most common cause of bacterial pharyngitis responsible for 20–30\% in children.

Objectives: To determine prevalence, antimicrobial susceptibility pattern and clinical predictors of GAS among children with pharyngitis in Jimma Town Southwest, Ethiopia.

Methods: A cross sectional study conducted on 355 children (5-15 years old) with pharyngitis attended in Health Centers of Jimma Town from May 8-December 31, 2013. Demographic and clinical data collected by using questionnaire and checklist. Throat swabs collected using sterile cotton swab, inoculated on blood agar plates and incubated for 24-48 hours at 35-37°C with 5\% CO\textsubscript{2}. β- hemolytic colonies that were susceptible for 0.04U bacitracin and pyrrolidonylarylamidase (PYR) positive considered as GAS. Disc diffusion method used for antimicrobial susceptibility testing. Descriptive statistics and multivariate logistic regression analysis done by SPSS version 20. P-value less than 0.05 considered as statistically significant at 95\% confidence level.

Results: The sex profile of 355 children with pharyngitis showed that about 57.7\% were females. Majority (60\%) of the children were 5-9 years old giving mean ± SD age of 8.5 ± 2.7 years. The prevalence of GAS was 11.3\%. All GAS isolates were susceptible to penicillin and erythromycin but 52.5\% were resistant to tetracycline. Absence of cough [AO: 3.77, 95\% CI 1.73-8.22], tonsillar swelling or exudate [AOR: 4.48, 95\% CI 1.63-12.31], temperature >38°C [AOR: 3.47, 95\% CI 1.61-7.49] were found independent predictors for GAS infection among children with pharyngitis (P<0.05).

Conclusions: The prevalence of GAS was low. The seasonality of GAS infection may underestimate the prevalence in this study, so that large-scale prospective study in the entire season and in various settings is required to understand the actual burden of GAS infection. In addition, clinical predictors can be used for the diagnosis of GAS infection with further validation in different settings.

Keywords: GAS, Pharyngitis, Children, clinical predictors, Ethiopia.

Background: Diarrhea is one of the major factors that contribute significantly to high child morbidity and mortality in many developing countries including Ethiopia. The current study was conducted to assess the prevalence of diarrhea and its associated risk factors among children under 5 years of age.

Methods: A community based cross sectional study was conducted from February to March 2011 in Debre Berhan, Ethiopia. Pre tested structural questionnaire and an observational check list were used for collecting data on the occurrence of diarrhea among children under 5 years of age and demographic, socioeconomic, environmental and behavioural factors for childhood diarrhea.

Results: A total of 312 children were participated in the study, of which 38 were suffering from diarrhea, thus giving a diarrhea prevalence of 12.2%. Odds ratio was calculated to identify the risk factors associated with diarrhea. Household storage of water in pot (OR = 6.35, 95% CI: 3.09 -13.06, P<0.01), observation of feces on the slab/latrine hole (OR = 0.32, 95% CI: 0.15 -0.66, P=0.001), lack of maternal education (OR = 0.39, 95% CI: 0.19-0.79, P=0.008), and age of mothers/care takers (OR= 0.39, 95% CI; 0.19-0.78, P=0.007) were the main risk factors for diarrhea among children under 5 years of age.

Conclusions: The observed high prevalence of diarrhea among under five age children indicates the need of immediate and sustained actions to reduce the incidence and mortality due to diarrhea. Efforts to reduce diarrhea should focus on improving household storage of water, maternal education and cleaning of feces on the slab/latrine hole.

Keywords: Children, Diarrhea, Determinants, Mothers, Sanitation

It is recommended that all mothers breastfeed their children exclusively at least for the first 6 months, however, in Ethiopia only one in three children aged 4-5 months were breastfed exclusively. To this end study on individual and contextual factors that may affect the intention of pregnant women to exclusive breast-feeding is scarce in Ethiopia and study area in particular. It is timely and appropriate to study pregnant women’s behavioral intention to exclusive breast-feeding for the smooth implementation. The Objective the study was to assess intention of exclusive breast feeding among pregnant women in MedebayZana District, North West of Tigray, North Ethiopia. Community based cross sectional study was conducted among sampled (n=709) pregnant women from January 25_ February 15, 2012. The behavioral intention question contained six domains on exclusive breast feeding: knowledge, future intention, attitude, behavioral beliefs, subjective norm, normative beliefs, perceived behavioral control, and control beliefs and power of control. Data was entered and analyzed using SPSS version 20.0 software. Relationships among the major variables were described by correlation coefficients. Multiple linear regressions were used to identify variables, which independently contributed for intention to exclusive breast feed. Pregnant women’s attitude was found to be the most significant (P< 0.05) predictor of intention to exclusive breast feeding (22.2%). Subjective norms (4.5%) and perceived behavioral control (2.5%) explained the independent variables respectively. Previous breastfeeding experience and being a housewife were found to be an external factor, made a significant (P < 0.05) contribution to theory of planned behavior. So Information education communication and Behavioral change Communication should focus on addressing the attitude towards Exclusive breast feeding, perceived behavioral control on Exclusive breast feeding and Subjective norms which is should consider the whole family.

Keywords: Intention, Exclusive Breast Feed, Attitude, Subjective Norms, Perceived Behavioral Control
Intestinal Parasitic Infections and Nutritional Status among Primary School Children in Delo-Mena District, South Eastern Ethiopia: A Cross-Sectional Study.

Begna Tulhe1*, Assistant Professor of Tropical and Infectious Diseases, Microbiology, Immunology and Parasitology Department, College of Medicine and Health Sciences, Bahir Dar University; Solomon Tege2, Eden Amsalu3 Yohannes Zebe4

Background: Intestinal parasitic infections (IPIs) are endemic in Ethiopia and efforts are underway to control and prevent them. However, current evidence is lacking in regards to their prevalence, intensity and their impact on children’s health.

Objectives: To evaluate the prevalence IPIs and their association with nutritional status in two primary school children of Delo-Mena district, south eastern Ethiopia.

Methodology: A cross-sectional study was conducted among primary school children in Delo-Mena district, from April to May 2013. Demographic data was obtained, and IPIs was investigated in single-stool samples by both direct stool examination and formol-ether concentration techniques. Anthropometric measurements were taken to calculate height-for-age (HAZ), BMI-for-age (BAZ) and weight-for-age (WAZ) to determine stunting, thinness and underweight, respectively using WHO AntroPlus. SPSS version 16 was used for statistical analysis and p value less than 0.05 was considered significant.

Results: Among 492 children studied (51% boys, aged 6–18 years, mean 10.93 ±2.4) an overall IPIs prevalence of 26.2% was found. Prevalence was 12.6%, 5%, 4.7% and 4.4% for S. mansoni, E. histolytica/dispar, A. lumbricoides and H. nana, respectively. Stunting and underweight was observed in 4.5% and 13.6% of children and associated with IPIs (p<0.001) and (p=0.001), respectively.

Conclusions: IPIs remain a public health concern in Delo-Mena district despite current efforts being underway by the government. So, health education, improving sanitation, provision of safe drinking water, increasing latrine use, snail control, and de-worming to the students is crucial.

**Background:** Childhood diseases causing life loss and disability can be prevented with cost effective and safe vaccines. In 2013, 21.8 million children of under one year of age did not receive DPT3 vaccine worldwide and 75% of them live just in 15 countries, of which Ethiopia rank 4th. This study aims at determining local factors associated with incomplete immunization in Sasiga woreda of Oromia regional state.

**Method:** A cross sectional community based study was conducted from 07-27/07/2014 in Sasiga woreda of Oromia regional state. Data was collected on 708, 12-23 months old children by interview or reviewing vaccination card. We have used Epi info ver. 7 was used for data entry and analysis. We have performed descriptive analysis, bivariate analysis and finally multivariate logistic regression analysis to determine factor that is the independent predictor of complete immunization.

**Result:** Mean age of mothers and children were 25.8, ±5 SD and 16.9, ±3.67SD, respectively. Overall, 71.9% of the subjects were fully vaccinated while 10 (1.4%) never get vaccine. The two major reasons for interrupting immunization were mother negligence (39%) and improper approach of service provider (20%). On multivariate logistic regression analysis; ANC follow up, Educational status of mothers, mother age group, number of children in the house and Place of birth were found to be independent predictors of complete vaccination.

**Conclusion:** Children from mothers who are underutilizing other essential health services like ANC and delivery service were found to be at increased risk of interrupting immunization. And the major reasons for interruption of immunization were negligence of mothers and factors related to service providers. We recommend local specific comprehensive strategy that addresses both mothers and service providers that enhance complete vaccination coverage of the woreda.
Causes and Determinants of Neonatal Mortality in Southwest Ethiopia: A Multilevel Analysis of Prospective Follow-up Study. Gurmesa Tareq, MPH, Assistant Professor, College of Public Health and Medical Sciences, Jimma University, Ethiopia; Mengenaw Fantahun, MD, MPH, PhD, School of Public Health, Addis Ababa University; Alemayehu Worku, PhD, Associate Professor, School of Public Health, Addis Ababa University.

Background: Ethiopia is one of the Sub-Saharan African countries having high neonatal mortality with the rate of 37 deaths per 1000 live births. In spite of many efforts by the government and other partners, non-significant decline has been achieved in the last 15 years. Thus, identifying the causes and determinants are very crucial for policy and program improvement as well as improving the health care system. However, studies on this issue are scarce in the country in general and in Southwest Ethiopia in particular.

Objective: To identify the causes and determinants of neonatal mortality in Southwest Ethiopia.

Methods: A prospective follow-up study was conducted among 3463 neonates from September 2012 to December 2013. The data were collected by interviewer-administered structured questionnaire and analyzed by using STATA 13. Verbal autopsies were conducted to identify causes of neonatal death. Mixed-effects multilevel logistic regression model was used to identify determinants of neonatal mortality.

Results: The status of neonatal mortality rate was 35.5 (95%CI: 28.3, 42.6) per 1000 live births. Birth asphyxia (47.5%), neonatal infections (34.3%) and prematurity (11.1%) were the three leading causes of neonatal mortality accounting for 93%. Though significant variation existed between clusters, cluster-level variables were found to have non-significant effect on neonatal mortality. Individual-level variables such as birth order, frequency of antenatal care use, delivery place, gestation age at birth, premature rupture of membrane, complication during labor, twin births, size of neonate at birth and neonatal care practice were identified as determinants of neonatal mortality.

Conclusions: This study found high status of neonatal mortality in the study area. Higher-level variables had less importance in determining neonatal mortality. Individual level variables related to care during pregnancy, intra-partum complications and care, neonatal conditions and the immediate neonatal care practices were identified as determinant factors. Improving antenatal care, intra-partum care and immediate neonatal care are recommended.
Prelacteal Feeding Practice and its Associated Factors among Mother with Infants Attending Immunization Clinic in Harari Region Public Health Facilities, Eastern Ethiopia. Yoseph Bekelu, BSc in Public Health, MPH in Nutrition, Haramaya University Health and Medical Science College, Department of Public Health.

**Background:** Breastfeeding will have the intended outcome if it is initiated timely, giving colostrum, be exclusive for the first six months, and pre-lacteal feed discouraged. A lack of exclusive breastfeeding contributes to over a million avoidable child deaths each year. Prelacteal feeding emerged as a maladaptive practice that was not previously identified as a target for intervention, because it takes place before the beneficial actions of the colostrum on the gut, unpasteurized substances are introduced when the gut is at its most permeable and vulnerable to contaminants.

**Objective:** To assess prelacteal feeding practice and associated factors among infants attending immunization clinic in Harari regional government health institution in 2013.

**Methods:** facility based cross-sectional study. The study population was selected mother with infants who presented to immunization clinic of health facilities during the study period. The total sample size was 634. Data were collected by interview using interviewer administered structured questionnaire.

**Result:** Two hundred seventy eight (45.4%) of mothers gave prelacteal liquids for their infants. The common pre-lacteal food includes sugar or glucosewater 121(43.5%) followed by milk other than breast milk 70(25.1%). Home delivery significantly affect prelacteal feeding (AOR=3.42, 95% CI(2.00, 5.88). Fail to attend ANC, late breast feeding initiation and those mothers who were influenced by someone to give prelacteal feeds for their new born infants were other identified associated factors for prelacteal feeding.

**Conclusion and Recommendation:** This study showed that the prevalence of prelacteal feeding is high in the area. Failing to attend ANC, giving birth at home, late initiation of breast feeding and someone influencing mothers give prelacteal feeds for their new born infants were the strongest factors determining prelacteal feeding. Providing health education at health institutions and in the community level aimed to introduction of prelacteal feeding, advising pregnant mother to utilize ANC and safe institutional delivery service is recommended.
Analyses of the Prevalence, Trends and Correlates of Small Size Babies in Ethiopia: 
An In-Depth Analyses of the Ethiopian Demographic and Health Survey (EDHS) (2000-2011). Tadese Alemu, PhD Candidate & Melaku Umeta, PhD; AAU.

Objective: To analyze the prevalence, trends and determinants of subjective measure of birth weight (size at birth) of Ethiopian children between 2000 to 2011 using the DHS data set from measure DHS website.

Methods: In-depth analysis of the EDHS was conducted using representative data collected from all regions in the country. Considering reported fetal birth size at birth as an outcome variable, key predicting variables from socio-demographic, household, child and maternal reproductive characteristics were employed for analyses. Chi-square test and multivariate logistic regression model were used to determine predictors at p value < 0.05.

Results: Data from a total of 35,167 children was analyzed from the three (2000, 2005 and 2011) DHS surveys. Accordingly, even if a non-linear but declining trend of small size babies was observed, several variables were identified predicting small size babies in Ethiopia. Maternal age at delivery, place residence, region, maternal literacy level and paternal educational status among the socio-demographic variables; presence of radio and television from the household and level of maternal anemia during pregnancy, planning pregnancy, ever use of addictive substances including coffee during pregnancy as well as number of ANC follow-up were among the maternal characteristics identified predicting the outcome variable.

Conclusions: The prevalence of small size babies in Ethiopia has showed a declining trend in the last 10 to 11 years and determined by several variables from different origins; nonetheless, the magnitude is still one of the highest in the world requiring prompt attention for intervention.
The Magnitude and Associated Factors of a topic Dermatitis among Children in Ayder Referral Hospital, Mekele, Ethiopia. *Abraham Getachew, MS; Duramo General Hospital Dermatology unit; Wokalemahu Aleme, MD, Mekele University; Asbenaif Shume, MPH, Mekele University; Sevonias Getachew, MPH, Addis Ababa University School of Public Health 2014.*

**Background:** Atopic Dermatitis (AD) is now a day's increasing in prevalence globally. A Prevalence of 5-25% have been reported in different country. Even if its prevalence is known in most countries especially in developing countries there is scarcity with regard to prevalence and associated risk factors of AD among children's in Ethiopia settings.

**Objective:** To determine the magnitude and associated factors of atopic dermatitis among children patients in Ayder referral hospital, Mekele, Ethiopia.

**Methodology:** A facility-based cross-sectional study design was conducted among 477 children aged from 3 months to 14 years in Ayder referral hospital from July to September, 2014. A systematic random sampling technique was used to identify study subjects. Descriptive analysis was used to determine characteristics of study units. Bivariate and multivariate logistic regression was used to identify factors associated with AD. The OR with 95% CI was used to show the strength of the association and a P value < 0.05 was used as cut off point in determining the level of significance.

**Results:** Among the total respondents, 237 (50.4%) were males and 233 (49.6%) females children’s. The magnitude of the atopic dermatitis was found to be 9.6% (95% CI: 7.15, 12.49). In multivariate logistic regression model, those who had maternal asthma (AOR=11.46 (95% CI: 3.25-40.51), hay fever history (AOR=23.5 (95% CI: 4.64-118.88)) and atopic dermatitis history (AOR=5.98 (95% CI: 1.007-35.6)), paternal asthma (AOR=14.4 (95% CI: 4.028-51.705)), hay fever history (AOR=13.8 (95% CI: 2.439-78.9)) and personal asthma (AOR=10.5 (95% CI: 1.3-85.6), and hay fever history (AOR=12.9 (95% CI: 2.65-63.401)), with age (three month to 1 year) (AOR=6.8 (95% CI: 1.1-46.0) and weaning at 4 to 6 months age (AOR=3.9 (95% CI: 1.2-13.3)) were significant predictors of atopic dermatitis.

**Conclusion:** In this study the magnitude of atopic dermatitis was high in relation to other studies conducted so far in the country. Maternal, paternal, personal asthma, hay fever histories, maternal atopic dermatitis history, age of child and age of weaning were independent predictors of atopic dermatitis. Hence, the finding alert a needs of strengthening the national skin diseases prevention and control services in particular in skin care of children related to atopic dermatitis and others. In avoiding early initiation of supplementary feeding specially with families with atopic problem needs further attention of prevention activities.

**Keyword:** Atopic dermatitis, cross sectional study, mag, institutional based study.
Predictors of Clinical Response to Empiric Antibiotic Therapy among Hospitalized Children with Community Acquired Pneumonia at Jimma University Specialized Hospital. Tegabun Chanie (B.Pharm, MSc in Clinical Pharmacy), Shimelis Mekit (B.Pharm, MSc in Clinical Pharmacy), Tsimel Girma (MD, PhD, Associate Professor of Pediatrics & Child Health).

**Background:** Childhood community acquired pneumonia (CAP) is a leading cause of morbidity and mortality worldwide. In Ethiopia, it is the top killer and major cause of hospital admission and antibiotic use. However, there is a dearth of literature on predictors of clinical response to empiric antibiotic therapy in such resource poor setting.

**Objectives:** To determine the predictors of clinical response to empiric antibiotic therapy among hospitalized children with CAP.

**Methods:** A four month prospective observational study was conducted from March 14 to July 16, 2013 among hospitalized children with CAP taking empiric antibiotics at Pediatric ward of Jimma University Specialized Hospital. The study included 126 children within ages of 1 month to 14 years. The primary outcome of interest was clinical response within 48 hours of starting empiric antibiotic therapy and during hospital stay. A multivariable regression analysis was also used to determine the independent predictors of clinical response.

**Results:** There were a total of 183 (30.3%) admissions due to CAP to the pediatric ward of JUSH during the study period. Those who fulfill inclusion criteria and enrolled in the study were 126 (68.9%). Majority, 73%, of hospitalized children showed clinically improvement within 48 hours of starting empiric antibiotics therapy. The multivariate analysis showed that children with no history of exposure to passive cigarette smoke (Adjusted odds ratio (AOR) 2.7; 95% CI 1.8-7.8: p 0.040), living in not overcrowded family (AOR 2.9; 95% CI 1.0-8.4: p 0.047) and history of fever at home (AOR 0.3; 95% CI 0.1-0.9: p 0.033) were independent predictors of clinical response.

**Conclusion:** We detected clinical improvement in a significant proportion of hospitalized children with CAP after initiation of empiric antibiotic therapy. Children living in overcrowded family, history of exposure to passive cigarette smoke, and without history of fever at home may need special attention to minimize risk of clinical deterioration.

**Keywords:** Predictors, Clinical Response, Antibiotic Therapy, Pediatrics, Community Acquired Pneumonia.
Breast-feeding Performance Index is associated with morbidity status of under 6 month infants in Ethiopia. Sibhatu Biedjigieg1, Demewoz Haile2 Freelance Public Health Research Consultants, Addis Ababa, Ethiopia 1Department of Public health, College of Medicine and Health Sciences, Mekelle University, Ethiopia

**Background:** Breastfeeding performance index is an explanatory attempt to summarize key breast feeding practices by summarizing the different dimensions of breastfeeding practices into single summary variable. Although there are studies about optimal breast feeding practices in Ethiopia, there is no study which documented optimal breast feeding using composite summary index. Therefore, the objective of this study is to assess the optimal breast feeding practices of 0-6 month infants using breast feeding performance index and its association with morbidity status using 2011 Ethiopian DHS data.

**Method:** A quantitative cross-sectional study carried out based on the secondary data of the Ethiopia Demographic Health Survey (EDHS) 2011. Data of a total of 1204 infants were included in the analysis. The Breast feeding performance index (BPI) was created using seven components by giving equal weight for all components during scoring. The index is grouped in to three groups based on tertiles. The data were described using descriptive statistics and analyzed using binary logistic regression.

**Result:** The prevalence of low, medium, and high BPI was 23.1%, 56.0 % and 20.8% respectively. The mean (±SD) (95% CI) BPI score was 4.38 (±) (95% CI: 4.31-4.45). Binary logistic regression analysis showed that being in the lowest category (OR: 95% [2.25(1.22-4.16)] were 2.25 times at higher risk while being in the medium category (OR: 95% [2.18(1.25-3.79)] 2.18 times at higher risk to develop diarrhea as compared to those infants who found in the highest BPI category. The lower BPI was significantly associated with higher risk of fever (OR: 95%) [1.79(1.11-2.89)]. Being in the medium index category was also associated with higher risk of developing fever (OR: 95%) [1.49(1.07-2.91)]. However BPI was not significantly associated with cough in the last two weeks (OR: 95%) (1.442(0.95-2.2)).

**Conclusion:** The prevalence of optimum (high) BPI was low. More than 80% of the infants had no optimum breast feeding according to the BPI. BPI was statistically associated with diarrhea and fever morbidity in the last two weeks. The index helps to target a community for an intervention regarding breast-feeding practices for targeting of breastfeeding education and behavior change interventions.

**Keywords:** breast feeding, index, infants, DHS, Ethiopia

Background: Diarrheal disease is the second leading cause of deaths among children under five globally. Despite global efforts over the past several years, current uses of ORS rates in the developing world are surprisingly low (39%). The situation in Ethiopia is not an exception. Oral Rehydration Therapy (ORT) is simple, inexpensive, most cost-effective way to treat dehydration and reduce diarrhea mortality.

Objective: The objective of the study was to investigate the difference in practice of managing sick under five children with diarrhea both in IFHP intervention and non-interventions areas as well as the baseline and end-line of Oromia region, Ethiopia.

Method: Cross sectional comparative household survey was conducted between April – May 2008 and 2013. A quasi experimental design was used in which coverage indicators concerning key child survival interventions were compared between the baseline (2008) and end-line (2013) and USAID funded IFHP intervention and non-intervention areas. A total of 1212 and 1224 respondents were included in baseline and end-line surveys respectively.

Results: The reported previous two-week incidence of illness for diarrhea is 30.7% and 23.4% in IFHP and Non IFHP area respectively in the 2013 end-line survey for Oromia region. In the 2013 end-line, ORS was given to 47.7% of children suffering from diarrhea two weeks preceding the survey. It was 34.5% in baseline, 2008. The difference is statistically significant (P-value <0.05). The use of ORS for treatment of diarrheal cases was markedly higher in intervention (47.7%) and non- intervention (33.2%) areas. Further, the end-line data revealed that sick children who received ORS or recommended homemade fluid were 55.6% for IFHP and 46.4% non-IFHP areas. In both comparisons the difference is significant at P-value < 0.05. Modest increase was noted in end-line when compared with the baseline in the entire region. Of note, there was no difference in the feeding practice to sick children between the baseline and end-line.

Concerning other child survival indicators, the households with improved drinking water has shown marked improvement from 39.4% in 2008 to 50.7% in 2013. Similarly, households with improved sanitation have shown slight change from 57.3% in baseline to 66.2% in the end-line surveys. Both indicators have shown remarkable change at p-value < 0.05. In the end-line Vitamin A supplementation for 6-23 months children six months preceding the survey was 76.3% in IFHP and 63.1% in non-IFHP areas. The measles immunization coverage rate has shown significant improvement in IFHP intervention than non-interventions; 68.9% versus 49.3%, respectively. Unlike other antigens, the measles coverage was markedly increased from 47% in the baseline to 69% to end-line; the difference is statistically significant (p<0.05).

Conclusion and Recommendations: The prevention and treatments of diarrhea is simple, do-able and often follows the following basic steps increasing vaccine coverage, encouraging hand-washing with soap expanding access to safe drinking water and sanitation and disseminating ORS to children with diarrhea. To further improve the utilization of ORS and ORT to treat dehydration due to diarrhea continuous health education of the community on benefit of ORS and /or ORT, improving the skill and knowledge of service providers on management of diarrheal cases and ensuring wide availability of ORS in the peripheral health facilities are crucial.
Assessment of Infant and Young Child Feeding Practices of HIV Positive Mothers and its Associated Factors in South Gondar Zone, Northwest Ethiopia. Institution Based Cross-sectional Study was Conducted. Abeb Worku, HO, MPH, South Gondar Zone Blindness and Non-communicable Disease, South Gondar Zonal Health Department; Tadese Ejigio, BS, MPH, PhD Fellow, Assistant Professor; Dereje Birhanu, BS, MPH, PhD Fellow.

Background: Mother-to-child transmission is the largest source of Human Immuno deficiency Virus infection in children. About one third of children infected are believed to be vertically during breast-feeding. Infant feeding in the context of HIV is complex. HIV positive women are confused about feeding methods and mixed feeding continued to be widespread and little is known about feeding practice of HIV positive mothers in the study area.

Objective: To assess Infant and young child feeding practices of HIV positive mothers and associated factors in selected health institutions, of South Gondar Zone, west Amhara.

Methods: An institutional based cross sectional study was conducted from July to September 2013. In South Gondar Zone there were a total of 19 (1 Hospital & 18 Health Center) providing PMTCT and ART service, of which 10 (1 Hospital & 18 Health Center) were selected randomly using lottery method. The registration of mothers who had a child age less than 24 months by the health professional was used as a sampling frame. Data was collected using interviewer administered questionnaire and was entered and analyzed using SPSS version 16. Logistic regression was used to identify determinants. P value <0.05 was considered statistically significant.

Result: A total of 437 participants were recruited, of them 433 participated in the study making the response rate 99%. Of all respondent, 401(92.5%) reported that they ever had breastfeed the current child, and of them 253 (62.6%) initiated breast feeding before one hour. Practice of exclusive breast feeding reported (70.4%), and mixed feeding was reported (20%). About 95% of mothers received counseling on feeding options. Mothers who had delivered at health institution and information provide from health professional were more likely to practice exclusive breast feeding.

Conclusions and Recommendations: More than two third of mothers practiced exclusive breast feeding but early initiation of breast feeding was low. In general, infant and young child feeding practices observed in this study meet the WHO recommendations. The recommendation of this study were provide all the necessary information of each feeding options for HIV positive mothers by health workers. Periodic reassessment of the awareness and practice of mothers about safe infant feeding practices and Increase the number of PMTCT/ART sites in the study and other areas. Children be put to the breast immediately or within one hour after birth.

Keywords: Feeding Practices, Breast feeding and complementary feeding.
Prevalence and Determinants of Diarrheal Morbidity for Children Aged Between 6 And 59 Months in Rural South Ethiopia: A Hierarchical Model. Hunachew Beyene 1-2, Wakgari Deressa 1, Abera Kumi 1 School of Public Health, Addis Ababa University; 2 School of Environmental and Public Health, Hawassa University.

Background: Diarrhea remains to be a public health burden with high morbidity and accounting for the majority of deaths in under-five children. Despite improvements in the coverage of improved water and sanitation facilities, several studies revealed that diarrhea has remained a major public health problem in the country. Studies revealed that the transmission of diarrhoea is influenced by factors from all Socioeconomical, environmental, contact, and child care related factors in a hierarchical manner. However, comprehensive reports from population-based studies, which considered all the agroecological variations of the area are lacking. Therefore, the current aimed at determining the magnitude and identify the risk factors for diarrhea in rural inhabitants of Sidama zone.

Methods and materials: This cross-sectional study was conducted from June 2013 to July 2013, in 8 kebeles of Sidama Zone, Southern Ethiopia, categorized into highland, moist midland, dry midland, and lowlands. In each agroecological division, One ODF and another non-ODF were represented. A total of 1939 children between the ages of 6 and 59 months in 1677 households were selected for the study. Children below the age of 6 months were left as they are exclusively breastfed and protected of exposure from external agents. Pretested questionnaire was used for the data collection. Trained health professionals conducted the data collection activity in each household. The collection process included interview of selected target respondents at each house and observation of the housing conditions, latrines, and other neighbourhood environmental conditions. The respondents were primarily mothers of eligible children under 5 years of age, but in the absence of the mother, the next primary caregiver was interviewed. The 2-week diarrheal prevalence was asked in each mother or primary caregiver. Data was entered with a template prepared in Epinfo version 6 and analyzed using SPSS v.19 statistical software. Descriptive statistics were used to summarize the study variables, and logistic regression analysis was performed separately for three variable blocks estimated the effect socio-economic, environmental, and behavioural and child related factors. The final model estimated the overall effect of the three blocks of variables. Ethical clearance was granted from the Ethical review board of Addis Ababa University, College of Health sciences; and permission was obtained from the SNNPR Health Bureau and Sidama Zone Health department.

Result: The 2 weeks period prevalence of diarrhea was 497(25.6%) (95% confidence interval (CI) 23.7-27.6). In the final multivariate model, believing in traditional religion (OR: 2.515; 95% CI=1.559-4.059), living in rented or shared house (OR: 2.04; 95% CI=1.16 -3.57), living in low land (OR: 1.828; 95% CI=1.281-2.609) and mid land (OR: 1.509; 95% CI=1.052-2.165), storing drinking water above two days (OR: 1.749; 95% CI=1.280-2.388), presence of illnesses including diarrhea of other members of the family (OR: 1.339; 95% CI=1.042-1.721), and being in the age group between 6-12 months(OR: 2.459; 95% CI=1.676-3.608)and 13-24 months (OR: 1.619; 95% CI=1.103-2.377) were found to be strongly associated with diarrheal morbidity (P≤0.05).

Conclusion: In this study it can be concluded that diarrhea is still the major public health problem in the study area, and many of the known risk factors of diarrhea are still highly prevalent. Therefore, we recommend the implementation of basic health packages in each household as it helps to significantly reduces diarrhea among under-five children. Therefore dissemination of hygiene promotion activities through health development armies need to be enhanced as it helps to improve awareness on hygiene and sanitation.

Keywords: diarrhea, water, sanitation, hygiene, under-five children, morbidity.
Drug Use and Traditional Medicine

Abs 50

Epidemiology of Self-Medication with Modern Drugs among Health Professionals in Nekemte Town, West Ethiopia. Edano Sado, MSc, Department of Pharmacy, Pharmacoepidemiology and Social pharmacy Unit, Wollega University; Endashaw Kassahun BSc, Department of Pharmacy, Pharmacology and toxicology Unit, Wollega University; Selamu Kebano MSc, Department of Pharmacy, Pharmacology and toxicology Unit, Wollega University.

Background: Self-medication is the selection and use of medicines by individuals to treat self-recognized illnesses. Health professionals differ from the general population as they are familiar with drugs. Despite this familiarity, data on the use of drugs without prescription is scarce and unknown among health care professionals.

Objective: To assess prevalence of self-medication and associated reasons among health professionals in governmental health facilities of Nekemte town.

Materials and Methods: This was a cross sectional and descriptive study, of one hundred sixty nine health care professionals working in government health facilities found in Nekemte town. Carefully prepared and pretested self-administered questionnaire was used to collect data from the study subjects.

Results: One hundred fifty four questionnaires were completed and retrieved from respondents giving 91.1% of response rate. Prevalence of self-medication with modern medicines was found to be 67.5% and financial constraints (32.5%) and familiarity with drugs and treatment options (24%) are the two major reasons to practice self-medication. It was found that self-medication with modern drugs was significantly associated with marital status ($X^2= 19.57, P < 0.05$). Analgesics (53%) and antibiotics (36%) were the most commonly used pharmacological category drugs for self-medication.

Conclusions: Self-medication with modern very prevalent among health care professionals. Financial constraints and familiarity with drugs are the two major factors for high prevalence of self -medication. Association between self-medication and marital status is significant. Analgesics and antibiotics are the commonest category of drugs used for self-medication. So, there should be functional policy that limit dispense of these drugs without prescription particular antibiotics.

Keywords: Self-medication, health care professionals, modern drugs, West Ethiopia.
Assessment of Factors Contributing to Substance Abuse: The Case of Three High Schools Found in Bole Sub City, Addis Ababa, Ethiopia  

Adane Woldeab Deyama

Background: According to the report of United Nations (UN: 1971) drug abuse, History of substance abuse / drug abuse is as old as history of mankind. The increased trend of drug abuse is causing a serious problem to countries of the world. The history of drug abuse in Africa is relatively short. Despite this fact, the abuse in Africa is escalating rapidly from cannabis and khat abuse to more dangerous drugs: and from limited groups of drug users to wider range of users. The government of Ethiopia considers drug abuse as a serious and emerging problem (EJHD, 2002). Understanding factors contributing to substance abuse is crucial in the implementation of drug preventions.

Objectives: This study investigates factors contributing to substance abuse among three high school students in bole sub city, Addis Ababa.

Methods: A descriptive survey was carried out among 306 systematically selected students in three high schools from May to June 2014 using self-administered structured questionnaire and interview question for purposely selected six teachers from these three high schools. Students at each school and grade levels were listed alphabetically and taken as a sample following the procedure of systematical sampling. Descriptive statistics was used to describe the study population and data obtained from interview was analyzed using thematic analysis. Cross tabulation and figures were used to relate variables and schools participated in this study.

Result: Knowledge of study subjects about the causes of substance abuse at their school was asked. 191(66.6%), 209(72.8%), and 163(56.8%) believe that students abuse drugs for academic purpose, due to peer pressure and to stay awake respectively. On the other hand 136(47.4%), 134(46.7%), 128(44.6%) believe that students abuse drugs to be sociable, because they get a lot of pocket money and to get relief of stress respectively. In addition 123(42.9%), 111(38.7%), 84(29.3%), and 71(24.7%) respondents put reason/s for students drug abuse as, to get acceptance, because teachers take drugs, parents or guardians abuse drugs and some related reasons respectively. On the other hand study subjects answered the possible factors contributing to drug abuse behavior of students as 167(67.9%), 97(39.4%), and 78(31.7%) nearby shops, students themselves, and shoe shiners respectively. The rest 76(30.9%) and 57(23.2%) answered specific drug distributors and some other places as possible sources contributing to students substance abuse behavior at school respectively. The absence of regulations at schools about drugs and some other ethical issues is another important reason mentioned by respondents. Moreover lack of awareness of school administration and teachers (59.6%) is also presented as one basic reason that triggers students to use and abuse substances. As to its prevention aspect, 227(79.1%) revealed that substance abuse can be prevented by providing health education and various promotional activities at schools.

Conclusion: Significant numbers of Students in all three high schools are using substances. The most commonly abused drugs are cigarette, khat and alcoholic drinks. Peer pressure and family experience of drug taking are the two factors observed in this study which influence students to become drug users. In addition the presence of drug shops, absence of regulations and school commitment to fight problems of drug abuse are reported as contributing factors for substance abuse. Most of the students participated in this study are not sensitized to drug prevention and control programs at school.
Drug Utilization at Household Level in Nekemte Town and Surrounding Rural Areas, Western Ethiopia: A Cross-Sectional Study. Edan Sado, MSc., Department of Pharmacy, College of Medical and Health Science, Wollega University, Nekemte, Ethiopia; Teferi Gedif, PhD., Department of Pharmaceutics and Social Pharmacy, School of Pharmacy, College of Health Science, Addis Ababa University, Addis Ababa, Ethiopia

At household levels drug may be hoarded and re-utilized inappropriately, shared within families and/or outside family and unnecessarily utilized in self-medication. Therefore this study was conducted to assess drug utilization at household level in Nekemte town and surrounding rural areas western Ethiopia. It was conducted on 844 households' head through interviewing where households were stratified into urban and rural; a household was selected by using systematic random and cluster sampling in the town and rural areas respectively. It was found that prevalence of drug hoarding was 49.9% where urban were 1.4 times more likely to hoard drug than rural areas (Adjusted OR = 1.4; 95%CI=1.02-1.8) and it was also found that drug hoarding was associated with level of households’ education where household heads who had level of education higher than or equal primary were 1.5 times more likely to hoard drug (Adjusted OR = 1.5; 95%CI = 1.04-2.3). The prevalence of drug sharing was found to be 24.9% where urban were 0.4 times less likely to share drugs than surrounding rural areas (Crude OR = 0.4; 95%CI = 0.3 - 0.6). Nineteen point five percent of illness episodes were reported from total surveyed households where 36.3% of them were self-medicated with modern medicines. Self-medication with modern drugs was significantly associated with age higher than fifteen years old (Crude OR = 0.37; %CI = 0.2, 0.83). In conclusion, drug hoarding, sharing and self-medication with modern drugs particularly antibiotics are commonly practiced in the community, so they should be avoided through educating general public on drug use so as to enhance rational drug use.

Keywords: Drug utilization, drug hoarding, drug sharing, Nekemte town and surrounding rural area, self-medication
Ethnopharmacologic Survey of Medicinal Plants Used to Treat Human Diseases by Traditional Medical Practitioners in Dega Damot Woreda, West Gojjam Zone, Amhara, North Western Ethiopia. Muliken Wubetu, MSc in Pharmacology, College of Medicine and Health Sciences School of Medicine Pharmacology Unit, Debre Markos University; Prof. Tefera Abula.

**Background:** Medicinal use is one of the services that plants provide for human welfare. The practice of traditional medicine is common in Ethiopia although it is not utterly studied and documented. Studies conducted so far are limited and focused on the perceptions and practices of modern and traditional health practitioners about traditional medicine.

**Objective:** the aim of this study is to assess ethnopharmacology of medicinal plants used to treat human diseases by traditional medical practitioners in Dega Damot woreda, West Gojjam zone, Amhara, Northwestern Ethiopia

**Materials and Methods:** A total of 45 informants were selected purposefully from the study area. Semi-structured interviewees, observation and field walks were employed from January 10 to February 30/2014. Descriptive statistical methods such as percentage and frequency were employed to analyze and summarize the data.

**Results:** A total of 60 species of medicinal plants distributed in 42 families were collected and identified for treating 55 human ailments. The most commonly treated ones were evil eye, malaria, wound, peptic ulcer disease and rabies. The commonly used plant parts were leaves (36.5%) and thirty nine percent of the preparations were decoctions. Oral route, 43 (44%) was the commonly used route of application whereas most (54.8%) remedies were administered only once. Fourteen percent of preparations caused vomiting in addition most (40.4%) of the formulations was contraindicated for pregnant patients. Only seventeen percent of the formulations possessed drug food interactions. Most preparations were stored within clothes, 31 (29.8%). There exists a high (ICF=0.8) uniformity of plant consumption among healers for treating respiratory problems. *Allium asiaticum* (FI=0.75) for evil eye, *Phytolacca dodecandra* (FI=0.8) for rabies and *Croton macrostachyus* (FI=0.78) for treating malaria were medicinal plants with highest fidelity levels showing conformity of knowledge on species of best healing potential. The principal threats of medicinal plants were reported to include drought, overgrazing and firewood collection.

**Conclusion and Recommendation:** Dega Damot woreda is rich in its medicinal plant composition and the associated indigenous knowledge though medicinal plants are highly affected by drought, overgrazing and firewood collection. Awareness should thus be created among the woreda’s community by concerned bodies regarding the usefulness of medicinal plants. The efficacy and safety of the claimed medicinal plants need to be evaluated before recommending them for a wider use.

**Keywords:** Medicinal plant, Traditional medical practitioner, Ethnopharmacology
Drug-Related Problems and Potential Contributing Factors in the Management of Deep Vein Thrombosis. *Fekede Bekele, M. Pharm, Department of Pharmacy, Jimma University; Ephrem Engidawork, PhD, School of Pharmacy, College of Health Sciences, Addis Ababa University; Fisibaison Tadesse, MD, Department of Internal Medicine, Tikur Anbessa Specialized Hospital, Addis Ababa.*

**Background:** Patients receiving anticoagulant drugs must be carefully screened for drug related problems, as such medications, including warfarin have narrow therapeutic ranges & a high potential for complications. Thus, this study was designed to assess drug related problems in the management of patients with deep vein thrombosis at Tikur Anbessa Specialized Hospital.

**Methods:** A cross-sectional descriptive study involving retrospective chart review of adult patients with deep vein thrombosis was conducted from April 09/2013 to July 07/2013 using structured data collection format &this was complemented by key informant interview.

**Results:** The study included 91 patients with venous thromboembolism. Fifty three (58.2%) were females. Mean age was 38.6 (± 13.76) years & more than 2/3 were below the age of 44 years. About 54% of them presented with concurrent medical conditions & most commonly with cancer. Percentage of warfarin weekly dose change ranged from 16 to 100 for recent sub-therapeutic International Normalized Ratios, 16 to 50 for therapeutic, and 11 to 66 for over therapeutic International Normalized Ratios with the mean value of 36.5 (±18.03). There was significant linear relationship between percentage of warfarin dose changed & consequent International Normalized Ratio values ($R^2 = 0.419; p = 0.000$). Accordingly, more than 51% of them presented with nontherapeutic International Normalized Ratio ranges following dose adjustment.

**Conclusions:** The most prevalent anticoagulation drug related problems were sub-therapeutic doses, over therapeutic doses and potential drug interactions. Institutional validated decision support tools for dosing decisions during maintenance anticoagulation therapy should be developed & used accordingly in order to prevent recurrent & hemorrhagic complications & to improve clinical outcomes.

**Keywords:** Deep Vein Thrombosis, Drug-Related Problems, Warfarin, International Normalized Ratio, Tikur Anbessa Specialized Hospital
Prevalence and Associated Factors of Tobacco Use among Adolescents in Ethiopia: A School Based Cross Sectional Study. Nebiyu Derjii, MPH in Epidemiology, department of public health, Wachemo University, Sabit Abazinah, MPH.

Background: Tobacco use is one of the leading public health threats in the world causing different health, and psychosocial risks. At a moment the spread of tobacco use is growing at fast in the adolescents, who are the future of the country. However, little information is known about the magnitude and predictors of tobacco use among adolescents in Ethiopia.

Objective: This study was aiming to assess the prevalence and associated factors of tobacco use among adolescents of Ethiopia

Methods: school based cross sectional study was conducted from April 10 to April 15, 2014 in 12 high schools selected randomly from public and private sectors, three from each in Hawassa town, and Jimma town, Ethiopia. Students (n = 1673) from grade 9 – 12, in the age limit of 13 – 19 were included in the study. Data were collected by self administered questionnaire that is adapted from global youth tobacco survey questionnaire. Bivariate and multivariate analysis were made using logistic regression on SPSS version 20.0 software in order to predict factors associated with tobacco use.

Result: The prevalence of tobacco use among adolescents were found to be 28.6% ever smokers, 17.2% current smokers and 12.6% used tobacco product other than cigarette. In addition, more than half (60.8%) of adolescents were exposed to tobacco smoke from others in public places. In the multivariate analysis sex, alcohol use, parent smoking, peer smoking, exposure to movie with actors smoking, not being exposed to anti smoking media messages, not discussing in the class about danger of smoking, and having perception that smoking is not dangerous to health were seen significantly associated with current tobacco use among adolescents.

Conclusion and Recommendations: the prevalence rate is increasing in its spread, the gap between male and female is decreasing and exposure to environmental tobacco exposure is widespread. Therefore the government of Ethiopia should legislate, enact, and enforce laws that decrease accessibility of cigarette, totally ban smoking in the public places, and prohibit tobacco advertisement and promotions in Medias and movies. Moreover adolescents of the country should be enriched with the knowledge on the dangers of tobacco use.

Keywords: tobacco use, cigarette smoking, adolescents, prevalence, global youth tobacco survey
Comparative studies of blood lead level among rural and urban preschool children in Jimma Zone, South West, Ethiopia. Akere Abaweh Agedum, BSc and MSc in Environmental Health, Lecturer and Researcher in Environmental Health, Ethiopian Institute of Water Resources, Addis Ababa University; Argaw Amhelo, Associate Professor; Sebelework Mekonnen, Jimma University.

Lead is the most abundant of the heavy metals in the Earth’s crust. It has been used since prehistoric times, and has become widely distributed and mobilized in the environment. To best of knowledge in Ethiopia nothing is known about blood lead level (BLL) in preschool children. 40 blood samples collected in June 2012 were analyzed using graphite furnace atomic absorption spectrometry. Check lists and questionnaires were used to identify the contributing factor for the BLL of the study participants during the study time. The mean blood lead level in the blood sample from preschool child was 0.69 ±1.45 μg/dl. Average blood lead was 0.7μg/dl for rural and 0.673 μg/dl for urban. The risk index of the preschool children was below 1 and the children were not risky for the health consequence of lead exposure. Blood lead level was significantly associated with road distance from households, water source and occupation of father. Availability of garage near households and pipe age were significantly associated with blood lead level in urban area. Factors like illumination, feeding habit, housing condition, habit and cleanliness of children were not significantly associated with blood lead level. Over all the finding indicates the level of lead is below concern of WHO and CDC for action. Further comprehensive research is recommended to conduct in environmental compartments like soil, water, air and food in the study site, other part of community and areas.

Keywords: Blood Lead Level; Preschool children; Urban; Rural; Merewe kebele; Jimma town
Characterization of Health Care Solid Wastes and Assessment of Waste Management System: A Case Study of Hawassa Referral Hospital, Hawassa University. Sisay Abebe, BSc; Gebeyew Berhanu, BSc, R. P. Raju, Ph.D Associate Professor; Ministries of environment and forest Addis Ababa

Background: Health-care waste is a by-product of health care services. Its poor management exposes health-care workers, waste handlers and the community to infections, toxic effects and injuries including damage to the environment.

Objectives: To assess present potential of generation of hazardous and non-hazardous wastes in the HURH in order to predict the future potential.

Methods and Materials: A waste generated daily in various wards of the Hawassa Referral Hospital was measured three times per day for two months using standard weighing scale. Various aspects of healthcare wastes' management was observed by the researchers. All 93 janitors were interviewed personally to assess their level of awareness about the risk of their exposure to the hazardous healthcare wastes and safe handling and disposal of the wastes. Printed questionnaire was also distributed among the janitors for this purpose. The study was conducted from December 20, 2013- March 15, 2014.

Results: All janitors (100%) agreed that improperly managed wastes could transmit infection to patients and 88 (94.62%) to janitors. All (100%) of the respondent reported that they did not have receive any guideline Document on health care most management Document in working area (Hospitals). 11(11.82%) of respondents reported that they had needle sharps injury in the preceding 12 months. All types of wastes collected three times a day by the janitors. And also segregation of wastes and treatment of infectious waste was absent in the hospital. The Average daily waste generated in the hospital was 286.92 kg/day; of which 170.435kg/day was non-hazardous and the rest116.84kg/day was hazardous High amount waste was generated from surgical (52.4 kg/day) and small amount of waste was generated from dentistry unit (3.7kg/day).

Conclusion and Recommendation: health care waste management practice in the hospital was unsatisfactory because of the lack of waste management of supervision and carelessness of patients, visitors, low awareness of janitors and health workers therefore the hospital should develop the waste management supervision and strictly follow the National Health Care Waste Management guideline.
Effect of Climate Change on Health from Gender Inequality Perspective: A Literature Review. *Awoke Aderatu* (MPH), Debre Markos University

**Background:** Climate change affects every aspect of society, from the health of the global economy to the health of our children and women. Its health effect is more severe in Women and children as compared with another group of people especially in developing countries. However, little attention has been given on the effects of climate change on public health from gender perspectives. So this literature review is done to assess the effect of climate change on health from a gender perspective.

**Methods:** A traditional literature review was conducted from different sources using a Google scholar searching strategy that are written on the topic using the English language.

**Findings:** Most literatures indicate climate is changing through time. Also reports indicate health consequences of climate change include higher rates of malnutrition due to food shortages, increase in heat-related mortality and morbidity, increase in respiratory disease where air pollution worsens, work related illness due to work overload, and mental health problems due to stress from climate change. Climate change affects the household food security status and leads to malnutrition. For this woman are among the vulnerable groups due to biological and cultural reasons. Also, women are responsible to feed the family as a whole which may lead to stress and mental illness during food shortages. Climate change can affect the health of family members and there is gender discrimination in the allocation of resources for health care which puts women and girls at greater risk than men and boys. Climate change leads to conflicts for resources and disasters. For this woman and girls are at a higher risk of sexual violence and extra work load as compared with men and boys which limits their movement to use income generating opportunities. Given the changing climate, inadequate access to water and sanitation services affects women as a family member and also they are responsible as primary family caregivers, and the health of their families’ which increases the overall amount of labor that is expended to collect, store, protect and distribute water.

**Conclusion:** The effect of climate change on health is clearly visible and it is higher among women and girls due to gender based inequalities in the community. Therefore, in any kind climate change mitigation, adaptation, financing and technology development strategies, the decision making role of women should be considered and the projects should be gender sensitive.

**Keywords:** Climate change, health, women, gender

Introduction: Improper solid waste management is a major public health and environmental hazards. The millennium development goals set targets for Environmental Sustainability and Access to Environmental Sanitation. Proper solid waste disposal is a crucial component of environmental sanitation and sustainability but it is neglected MDGs by low income countries.

Objective: This study designed to assess household demand for better solid waste management services in Hosanna town, southern Ethiopia.

Methods: The study was conducted in Hosanna town, in 2011 using a community based cross sectional survey design. The study participants were 605 households that selected using a systematic random sampling. The data were collected via interview, observation and qualitative. We employed a binary questions followed by an open ended contingent valuation type to draw out households’ willingness to pay. We used a binary logistic regression to determine the factors that influence households’ willingness to pay for better solid waste management services.

Results: This study found that the presence of unhealthy environmental sanitation conditions and practices in the area i.e. 42.5% of households throw on open space, 23.3% burn, 10.4% throw in to drainage/on street. Also revealed that improved water supply was ranked first by 48.8% of households followed by improved solid waste management service ranked by 36.7% as a perceived need. Majority of respondents (94.2%) [95%CI, 92.34-96.06] have willingness to pay for better solid waste management service. Furthermore, the study revealed that on average, the respondents were willing to pay 15.21 birr (SD+/−8 birr) per month. The logistic regression analysis showed that household’s concern of where their waste is disposed, household income and educational status were significant factors that influence households’ willingness to pay.

Conclusions: Households have willingness to pay for better solid waste management service in the town. This is an indication for a strong household’s demand for better solid waste management service. Despite the households demand for proper public solid waste management service, its provision by municipality is poor largely due to financial constraints to purchase equipment.

Recommendation: the SWM in the town need an attention. The official body should respond to residents demand and establish the service that offer opportunities for income generation, health improvements and reduced vulnerability. Also consider the mean WTP found by this study as a guide in setting a price and cost recovery analysis of the project.
Assessment of Factors Influencing Hygiene Behavior among School Children in Mereb-Leke District, Northern Ethiopia. Mulubirhan Assefa, MPH., Department of Public Health, College of health science Jigjiga University; Ahera Kanie, PhD., School of Public Health, Addis Ababa University.

Background: Poor school sanitation and hygiene is a major problem in developing countries and remains high risk behaviour among primary school going children. Many outbreaks of gastrointestinal infections have been associated with primary schools. This research paper was designed to assess the factors influencing hygiene behaviour among school children.

Methods: A cross sectional study was conducted in Mereb-Leke District, Tigray National Regional State among school children. The study population consisted of those who are in the second cycle as they are more mature and most senior in primary schools. A multi-stage probability sampling procedure with three stages was used to select participated schools. A total of 528 school children were randomly selected from students networking list of selected schools. Structured questionnaire and observational checklist at home and school setting were used to collect data.

Statistical analysis was done using SPSS Version 17.0 after the data has been entered using Epi-Info version 3.5.3. Primarily variables that had p-value <0.2 at bivariate analysis were used to develop logistic model to identify factors influencing hygiene behaviour via crude and adjusted odds ratio. Before commencement of the actual activities, ethical clearance was obtained from Addis Ababa University, School of public health ethical review committee.

Results: Children were grouped according to whether positive or negative hygiene behaviour outcome which permitted identifying factor affecting hygiene behaviour. Out of these, 326 (61.7%) had positive hygiene behaviour. The study found that knowledge on water handling (AOR, 2.24; 95%CI 1.54, 3.26), hand washing (AOR, 1.70; 95%CI 1.12, 2.57) and awareness on water handling matters (AOR, 2.0; 95%CI 1.37, 2.90), hand washing practice (AOR, 2.36; 95%CI 1.62, 3.45) were significantly associated to hygiene behaviour status. Being a member of hygiene and sanitation club (COR 0.42; 95%CI 0.26, 0.68), parent’s health package status (COR 0.62; 95%CI 0.43, 0.90), training on hygiene and sanitation and experience of visiting model school (COR 1.99; 95%CI 1.37, 2.88) had significance difference in hygiene behaviour.

Conclusion: This study has shown that knowledge, awareness, training on hygiene and sanitation, being a member of hygiene and sanitation club, experience of visiting model school, and parent’s health package status were factors influenced hygiene behavior. The concerned bodies should give attention in improving the Knowledge of school children on both latrine utilization and hand washing; to advance awareness of student on latrine utilization; in the form of strengthen school health clubs, organizing and coordinating training for both students and teachers, visiting model school. Further study that combined different methodological approach should be made to quantify the influence of enabling factors on hygiene behavior of students.

Keywords: Hygiene, Behaviour, Factor-influencing, School children, Ethiopia
Survey on Water, Sanitation, and Hygiene Practice in Gondar Town, North-West Ethiopia. Walegn Werkay (MPH, SPH, AAU), Haimanot G/Hiwot (MSC, EOHS, UOG), Biket Destaw (MPH, EOHS, UOG), Maney Kifle (MPH, EOHS, UOG), Debatu Damtie (MSC/Laboratory, UOG), Mesafint Molla (MPH, EOHS, UOG), Antha Nega (MSC, EOHS, UOG).

Introduction: Safe drinking water, sanitation and good hygiene are fundamental to health, survival, growth and development. Thousands of children die every day from diarrhea and other water, sanitation and hygiene-related diseases and many more suffer and are weakened by illness. Hand washing, water source and latrine construction were widely started in all parts of Ethiopia particularly by giving due attention to rural community since the start of health extension program, but water, latrine and hand washing practice use is found to be low in many parts of Ethiopia.

Objective: assessment of Water, Sanitation and Hygiene Practice and status in Gondar town.

Methodology: a cross-sectional study conducted from January - March 2012. A total of 423 households were included in the study. Ten trained Environmental Health Officers with two supervisors collect the data. The collected information checked, coded and entered to SPSS version 20.0 statistical package and Logistic regression analyses were performed to determine numerous factors on the outcome variable and to control confounding effect.

Result: The mean age of the respondents was 38.54 ± 16.7 years. Average family size of the households was 4.67 ± 2.5 and almost half of the households 51.6% lay on medium wealth rate. Only 9.9% of the household do not accessed drinking water from the source. Three hundred ninety three 92.9% households have latrine, of which 30% of them were shared with other households. Majority of the households 89.1% use soap for the past 24 hours, but only 42.3% have hand washing facility. Multivariate analysis showed that Households with low wealth status score is 3.68 times more likely to be un accessible water location status compared to high wealth status households (OR=9.68%, CI 2.88-32.102) and Households with low wealth status score is 9.61 times more likely to have no latrine compared to high wealth status households (OR=9.68%, CI 2.02-45.58). Households head with educational status grade 12 and above is 3.33 times more likely to be use soap for the past 24 hours compared to cannot read and write household heads (OR=3.33%, CI 1.18-9.34).

Conclusion and recommendation: high wealth score affects the location of the accessibility of water source and availability of latrine. Educational status affects the hygienic status (soap utilization) of households. Hygiene education should be promoted in the community for the promotion of water, sanitation and hygiene.

Keywords: water, sanitation, Hygiene, Latrine, accessibility of water.
Factors Influencing Compliance to Household Water Disinfection with Chlorination in Rural Eastern Ethiopia. Bezatu Mengistie*, Yemane Berhane2, Alemayehu Worku2,3 1 College of Health Sciences, Haramaya University, Harar, Ethiopia 2Addis Continental Institute of Public Health, Addis Ababa, Ethiopia 3School of Public Health, Addis Ababa University, Addis Ababa, Ethiopia

Background: Household water treatment increases the microbial quality of drinking water and reduces the burden of diarrhea. However, consistent and correct use is an ongoing challenge for the promotion of household water treatment. The effectiveness of the intervention at the community level is limited by inadequate compliance. Nevertheless, little is known about the factors associated with the regular use such intervention.

Method: Factors associated with compliance of household water chlorination were examined among households assigned to receive sodium hypochlorite (WaterGuard) during the randomized control trial from June to October 2011. Compliance data was collected from 284 households for 16 weeks using residual chlorine test kit. Baseline data was collected before implementing the intervention and linked with the cluster randomized controlled trial. Poisson regression was used to compute incidence rate ratio and 95% confidence interval.

Result: A total of 4536 household weeks observations was made during the follow up period. Respondents’ awareness about disease transmission through contaminated water (IRR=1.13, 95%CI: 1.06-1.22), perception of water quality as problem (IRR= 1.15, 95% CI: 1.07-1.23), water source from stream/river (IRR= 1.16, 95%CI: 1.04-1.28), and ownership of latrine (IRR= 1.09, 95%CI: 1.02-1.17) were associated with the increased incidence of household water treatment.

Conclusion: Providing adequate message about water contamination and water borne disease can help to improve the uptake of household water chlorination. Households with prior engagement in sanitation facilities such as latrine and use water from stream/river are more likely to early adopt household water chlorination.

Keywords: Household water treatment, chlorine, compliance, rural Ethiopia
Microbiological and Physico-Chemical Quality of Drinking Water in North Gondar Zone; A Cross Sectional Study. Debatu Damtio, MSc, CMHS, University of Gondar; Mengistu Endris, MSc, CMHS, University of Gondar; Yifkeir Tefera, MSc, CMHS, University of Gondar; Yabutani Tomoki, PhD, Tokushima Universities, Yoei Yamada, PhD, Tokushima Universities; Afework Kassu, PhD, Addis Ababa University.

Statement of objective: Assessing the microbiological and physico-chemical quality of drinking water sources is important to protect public health. Therefore, this study was aimed to assess the microbiological and physicochemical quality of drinking water sources in North Gondar Zone, Northwest Ethiopia.

Methods: A cross-sectional study was conducted from April-May 2014 in seven districts in North Gondar zone. The physico-chemical and microbiological quality of 71 drinking water samples were determined following the standard procedure. Turbidity, pH, and temperature were measured using turbidity meter, pH meter and thermometer respectively. Arsenic, Cr⁶⁺, NO₂, NO₃ and residual chlorine were determined by the colorimetric methods and rapid kits using DPM apparatus (Kyoritsu chemical-check Lab., Corp. Japan). Coliforms and V. parahaemolyticus were tested by rapid microbiological test strips (Sankori coliform and Sankori V. parahaemolyticus) following appropriate standard procedure. Consumers assessment was also conducted using questionnaire about the water sources. Data were entered and analyzed using SPSS version 20 software.

Results: The physico-chemical and microbiological quality of 71 water samples (tap n=29, spring n=15 and well n=27) were assessed. The mean turbidity of water samples was 19.35 ± 5.75 SD nephelometric turbidity unit (NTU), temperature 21.34±3.68 °C, pH 6.88±0.6, nitrate 10.02 ± 8.72 mg/l, nitrite 0.33±0.64 mg/l, residual chlorine 0.01 ± 0.06 mg/l, arsenic 0.2±0.00 mg/l and chromium 0.51±0.01 mg/l. Almost all samples were complying with the WHO acceptable range for nitrate arsenic and chromium among the physico-chemical parameters. However, turbidity was found to be unacceptably high in 21 (29.6%) samples, pH was unacceptably low in 26 (36.6%) of the samples and residual chlorine was unacceptably low in 69 (97.2%) of the samples. The majority of samples (n=46; 64.8%) had coliforms and 12 (16.9%) had V. parahaemolyticus.

Conclusion: Most of the physical and chemical parameters measured were within the recommended range except turbidity and residual chlorine. However, the majorities of drinking water samples were found to be contaminated and are potential risk to public health. Therefore, regular quality monitoring and frequent water treatment in the study area is mandatory.
Association of Biomass Fuel Use with Acute Respiratory Infections among under-Five Children in a Slum Urban of Addis Ababa, Ethiopia.  Habtamu Sanbata*, Araya Agfas*

Abera Kumie*, Department of Public and Environmental Health, College of Medicine and Health Science, Hawassa University

Department of Physics and Center for Environmental Sciences, College of Natural Sciences, Addis Ababa University; Schools of Public Health, College of Health Sciences, Addis Ababa University

Background: Indoor air pollution from biomass fuel is responsible for 50,320 annual deaths, accounting for 4.9% of the national burden of disease in Ethiopia. Acute respiratory infections are the leading cause of mortality among children in Ethiopia. There is limited research that has examined the association between the use of biomass fuel and acute respiratory infections among children.

Methods: A community based cross sectional study was conducted during January to February 2012 among 424 households in the slum of Addis Ababa. Data were collected by using structured and pretested questionnaire. Odds ratio with 95% CI for acute respiratory infection was calculated for each variable. Multivariate was used to determine the presence of an association between biomass fuel use and ARI after controlling for other confounding variables.

Results: Nearly 253 (60%) of children live in households that predominately used biomass fuel. The prevalence of acute respiratory infection was 23.9%. The odds ratios of acute respiratory infection were 2.97 (95% CI: 1.38, 3.87) and 1.96 (95% CI: 0.78-4.89) in households using biomass fuel and kerosene, respectively, relative to cleaner fuels.

Conclusion: There is an association between biomass fuel usage and acute respiratory infection in children. The relationship needs investigation which measure indoor air pollution and clinical measures of acute respiratory infection.

Keywords: Biomass fuel, Acute Respiratory Infection, Children, SLUM, ADDIS ABABA, ETHIOPIA
Indoor Air Pollution in Slum Neighbourhoods of Addis Ababa, Ethiopia. Haftamu Sanbatar, Arega Azfaa Abera, Kumie Department of Public and Environmental Health, College of Medicine and Health Science, Hawassa University b Department of Physics and Center for Environmental Sciences, College of Natural Sciences, Addis Ababa University c Schools of Public Health, College of Health Sciences, Addis Ababa University

An estimated 95% of the population of Ethiopia uses traditional biomass fuels, such as wood, dung, charcoal, or crop residues, to meet household energy needs. As a result of the harmful smoke emitted from the combustion of biomass fuels, indoor air pollution is responsible for more than 50,000 deaths annually and causes nearly 5% of the burden of disease in Ethiopia. Very limited research on indoor air pollution and its health impacts exists in Ethiopia. This study was, therefore, undertaken to assess the magnitude of indoor air pollution from household fuel use in Addis Ababa, the capital city of Ethiopia. During January and February, 2012, the concentration of fine particulate matter (PM$_{2.5}$) in 59 households was measured using the University of California at Berkeley Particle Monitor (UCB PM). The raw data was analysed using Statistical Package of Social Science (SPSS version 20.0) software to determine variance between groups and descriptive statistics. The geometric mean of 24-hours indoor PM$_{2.5}$ concentration is approximately 818 $\mu g/m^3$ (Standard deviation(SD=3.61)). The highest 24-hour geometric mean of PM$_{2.5}$ concentration observed were 1,134 $\mu g/m^3$ (SD=3.36), 637 $\mu g/m^3$ (SD=4.44), and 335 $\mu g/m^3$ (SD=2.51), respectively, in households using predominantly solid fuel, kerosene, and clean fuel. Although 24-hour mean PM$_{2.5}$ concentration between fuel types differed statistically (P<0.05), post hoc pairwise comparison indicated no significant difference in mean concentration of PM$_{2.5}$ between improved biomass stoves and traditional stoves (P>0.05). The study revealed indoor air pollution is a major environmental and health hazard from home using biomass fuel in Addis Ababa. The use of clean fuels and efficient cooking stoves is recommended.

Keywords: Indoor air pollution, PM2.5, Solid fuel, Stove type, Addis Ababa
Application of Gams and Classification Tree Combined with Genetic Algorithm for Habitat Suitability Modeling of Simuliidae Larvae. Argaw Ambelu, PhD, Department of Environmental Health Science and Technology, Jimma University; Sebikurik Mekonen, MSc, Department of Environmental Health Science and Technology, Jimma University; Tafere Addis, MSc, Ethiopian Institute of Water Resources, Addis Ababa University; Peter Goethals, PhD, Department of Environmental Biology and Ecology, Ghent University

Onchocerciasis is one of a tropical neglected disease that is transmitted through a bit of a blackfly group. Predicting the environmental preference of the blackfly larvae through habitat suitability modeling could have a paramount importance for the control the vector. Habitat suitability modeling is very important to identify the convenient habitat conditions or environmental constraints of a given taxon. Modeling of the vector using generalized additive models (GAMs) and classification tree combined with genetic algorithm (CT-GA) were applied to analyze the presence-absence and abundance of Simuliidae larvae. Simuliidae is family of different Simulium species which are vectors of onchocerciasis. This disease causes river blindness which is widespread in Africa and accounts for more than 99% of cases reported worldwide. Simuliidae larvae is one of the widespread macroinvertebrate group in southwestern Ethiopia. This may be the main reason why the region is endemic to onchocerciasis. One of the strategies of controlling the disease is application of pesticides to combat the vector. However, environmental management would be the best and most sustainable approach. Habitat suitability models are used to identify and select important environmental parameters determining to the prevalence of the disease vector. For this purpose Macroinvertebrate communities and environmental variables were used as predicting variables in GAMs and CT-GAs. Among environmental variables, river distances from the source, flow velocity of the river, depth of the water and nitrate concentration were found to be important variables identified by both models. Whilst Baetidae, Belostomatidae, Caenidae, Hydropsychidae, Nepidae and Nucoridae were the predicting macroinvertebrates identified by both the GAMs and CT-GA. Predicting Simuliidae with macroinvertebrate variables has better performance than predicting with environmental variables. Retarding the flow velocity of the river and increasing the water depth could help to control the disease vector, specifically at the head waters where the altitude is above 2000 meters above sea level. In addition, some of the identified macroinvertebrate taxa could be used for biological control of the vector.

Keywords: biomonitoring, Gilgel Gibe, macroinvertebrates, onchocerciasis, vector control
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Needle-Stick Injuries and Contributing Factors among Healthcare Workers in Public Health Facilities in Jigjiga Zone, Eastern Ethiopia. Lema Mideksa (BSc, MSc), Lecturer, Jigjiga University

Introduction: Health care workers (HCWs) have several challenges every day in their workplace in order to provide the best care to their patients; an exposure to biological hazard that may result from needle stick or cuts from other sharp instruments contaminated with an infected patient’s blood (Luis J. Galindez A. 2009). Two millions Needle stick injuries are reported in health care providers every year. But these are only the reported cases and about 40-70% cases of needle stick injuries are unreported in developing countries (Haris H., 2011/). According to the WHO, the global burden of disease from sharps injuries to health care workers includes 40% of all hepatitis infections and 4.4 % of all HIV infections among health workers (Prüss-Ustün A. 2005). In Somali region no studies have been conducted about NSIs among health care personnel.

Objective: This study was determined needle-stick injuries and contributing factors among healthcare workers in public health facilities in Jigjiga zone Somali region in January, 2013.

Method: A cross-sectional study design supplemented by qualitative was employed. Data was collected from 316 randomly selected health care workers using structured questionnaire which was supplemented with focus group discussion (FGD). Multistage sampling technique was used to select the participants for the quantitative method. Binary descriptive statistics and multivariate was done.

Result: The study revealed that 30.1% of health care workers experienced needle-stick injury within the last one year. Factors associated with occurrence of injuries were the type of health facility, work experience, ward they work in, knowledge on standard precaution, provision of sharp containers and average hour involved in work and organization with policy/protocol.

Conclusion: Taken as a whole, the present work evidenced that, needle-stick injuries were common problem among health care workers in studied health facilities suggesting a need for identification of hazards, and implementation of a comprehensive prevention program to reduce needle-stick injuries in the area.

Keywords: Needle-Stick, Injuries, Health Care Workers, Public Health Facilities.
Applicability of Biomaterials for the Recovery of Platinum Species from Cancer Patient’s Urine. 

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The indiscriminate discharge of cancerostatic platinum compounds from hospitals is one important anthropogenic source of platinum in the environment. Even though, they represent a small fraction when compared to platinum emitted from cars’ catalytic convertors, they pose a significant and higher toxicological and carcinogenic impact. Considerable portion of the administered anti-neoplastic chemotherapies is eliminated through cancer patient’s urine. Moreover, Platinum is a precious metal, making its recovery worth to consider. Separate collection of patient’s urine is a good alternative to achieve a more concentrated platinum stream for recovery. Hence, the potential application of biomaterials for sorption of cancerostatic platinum compounds and recovery from urine was investigated. The study focused on the screening of biomaterials through batch adsorption studies and evaluates their potential use in Pt recovery through continuous flow systems. Removal efficiencies and sorption isotherms of biomaterials were determined for [PtCl₂]₂⁻, cisplatin, carboplatin and oxaliplatin. The effect of pH, initial Pt concentration, urine matrix and dosage of biomaterials on adsorption efficiency was assessed. In addition, adsorption data were calculated using the Freundlich isotherm model. Among the biomaterials tested, activated carbon, chitosan and biochar were selected based on their high sorption efficiency. The highest removal (78%) of [PtCl₂]₂⁻ was achieved by activated carbon at pH 7 and no significant difference (P-value > 0.05) between pH 6, 7 and 8 was observed. Chitosan showed higher removal at the same pH values. Adsorption of cisplatin was less influenced by pH than [PtCl₂]₂⁻. Removal of oxaliplatin by activated carbon was found the highest (95%) at pH 7. In general, the result showed that sorption decreased at higher pH values. Better removal efficiency of biomaterials at the neutral pH (7) makes them convenient for application at the actual pH level of human urine. Capacity was higher for activated carbon, followed by chitosan and biochar in decreasing order except for carboplatin that showed higher adsorption for biochar than chitosan. Pt sorption followed the Freundlich isotherm model and showed a very nice fit with strong correlation coefficient, suggesting a multilayer adsorption system. Adsorption efficiencies of periodic mesoporous organosilica materials PMO-SH and PMO-SH(50%) were also tested and both of them showed high removal for all Pt species, except carboplatin. Moreover, there was a significant difference in sorption between the two materials (P-value < 0.05) for oxaliplatin. This difference might be attributed to the higher number (double) of thiol functional groups found in PMO-SH. A fixed bed adsorption study was conducted by a column packed with activated carbon and chitosan. The use of a dual bed (combined biomaterials) column had significantly higher sorption efficiency (P-value < 0.001) than a single bed column packed with activated carbon for oxaliplatin. The dual bed column had the highest removal for oxaliplatin, followed by carboplatin, [PtCl₂]₂⁻ and cisplatin in decreasing order. Matrix effects played a significant role on adsorption of [PtCl₂]₂⁻ due to the presence of many competing ions in the urine matrix. Eventually, recovery of Pt was evaluated in a desorption experiment and 91.7% of the temporarily adsorbed Pt was recovered. In general, the use of biomaterials for removal of cancerostatic platinum compounds is considered as an option due to their high adsorption potential and regeneration characteristics.
Predictors of Stunting and Anaemia among 6-23 Months of Age Children in Rural Ethiopia. Kadir Tegea Roha, MPH, PhD Candidate, Haramaya University, Nora O'Boylein (PhD, PROFESSOR), Tom O'Connor (PhD) and Tefera Belachew (PhD, Professor).

The opportunity for averting irreversible damage from under nutrition is 1000 days from when a child is conceived until age of two years, the most crucial part of future health and life of human kind. This study examines the magnitude of malnutrition and anaemia, and determines the predictors of stunting and anaemia among 6-24 months of age in rural Ethiopia.

Methods: By community based cross sectional study design, 216 infants aged 6–23 months with their mothers were included randomly in 8 rural villages from lowland and midland of rural Ethiopia. Household interviews, anthropometric measurements and blood test for anaemia were carried out by well-trained data collectors. To determine predictors, both logistic and linear regression models were used by estimating the adjusted odds ratios and 95% confidence intervals.

Results: Out of two hundred sixteen mother-children paired participated, 53.5% of the children were suffering from anaemia, 39.8% were stunted, 27% were underweight, and 11.6% were thin/wasted. Among stunted, underweighted and wasted children, 63.5, 68, and 66.7% were anaemic respectively. The magnitude of malnutrition was peaking at the age of 12-17 months for stunting, underweighting and wasting but mild anaemia was higher among 18-23 months. Anaemia was significantly associated with children not receiving the minimum meal frequency, Height for age Z score, child sickness in the last two weeks, low body mass index and hand washing behavior of the mother after toilet, whereas predictors of stunting were age and sex of the children, feeding minimum meal frequency, Weight for age Z score and maternal body mass index, age and height.

Conclusions and recommendation: Majority of the children in this community were affected by malnutrition. Maternal nutritional status, children morbidity and feeding patterns were associated with infant anaemia and malnutrition in rural areas of Ethiopia. In general, health information focusing on personal hygiene and maternal and child nutritional practices could be a sensible approach to reduce burden of under nutrition.

Keywords: Anaemia and stunting, Infants, malnutrition, Micronutrient deficiency
The Nutritional Status of Primary School-Aged Children in Kersa District, Eastern Ethiopia. *Firhiwot Meftiu*. *College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia.*

**Background:** The nutritional status of school-aged children impacts their health, cognition, and subsequently their educational achievement. Assessing children’s growth has far-reaching implications for promoting the health of future generations. The objective of this study was to assess prevalence and identify associated factors of undernutrition among school children in Eastern Ethiopia.

**Methods:** A cross-sectional study was conducted from January 2012 to February 2012 in Kersa, Eastern Ethiopia. The study included randomly selected primary school students. Anthropometric measurements were taken according to WHO standard procedures. A child was identified as stunted if height-for-age z-score below minus two standard deviations of the median of the reference population and thin if Body Mass Index for age z-score below minus two standard deviations. Binary logistic regression model was used to identify factors associated with undernutrition.

**Result:** A total of 1768 school children aged 5-14 years were studied. Stunting was observed among 157 (8.9%; 95% CI, 7.6-10.3) and thinness among 206 (11.6%; 95% CI, 10.1-13.1) of the students. 2% had severe stunting and 1.9% had severe low BMI for age. Children at the age 13-14 years showed a significant association with stunting and thinness (AOR 1.67, 95% CI 1.04-2.69) and (AOR 1.62, 95% CI 1.07-2.45) respectively. Children were more likely to be thin if they feel hunger at school (AOR: 1.51, 95% CI 1.05-2.16); if they are from households don’t have latrines (AOR: 1.47, 95% CI 1.06-2.03). Females were found to be less likely than males (AOR 0.72, 95% CI 0.52-0.99) to suffer thinness but not stunting.

**Conclusion:** The findings of this study show evidently that there is under nutrition among school age children, with thinness being the most prevalent indicating the integration of nutrition interventions into a comprehensive school health programs.
Prevalence of Under-nutrition and Associated Factors among Children Aged 6-59 Months Old in East Belesa Woreda, Northwest Ethiopia. Wagene Fentahun, MPH, Nutrition and Child health Officer, Gondar; Mambo Wubshet, PhD; Amare Tariku, MSc

Background: Undernutrition is one of the disorders that cause for many child deaths in the world. It varies from country to country and region to region depending on economic, ecological, social, and other factors. In Ethiopia at present the most serious nutritional problems are mainly due to low intake of food and recurrent infection. High undernutrition rate in the country causes significant obstacle to achieving better child health outcome.

Objective: To assess prevalence of undernutrition and associated factors among children aged 6-59 months in East Belesa Woreda, Northwest Ethiopia.

Method: A community based cross-sectional study was conducted from April 1 to 16, 2014. Multistage systematic sampling was used. A total of 633 from 6-59 month age children were included in the study. Pre tested structured questionnaire and anthropometric measurement were used. The questionnaires was entered in to EPI INFO version 3.5.3 statistical software and then transferred to SPSS windows version 20.0 for analysis. ENA for SMART 2011 software was used to convert nutritional data into Z-scores of the indices Height-for-age, weight-for-height. The degree of association between independent and dependent variables was assessed by using binary logistic regression, odds ratio with 95% confidence interval and p-value.

Results The prevalence of stunting and wasting were 57.7% and 16% respectively. Child age 36-47 months (AOR=0.41; 95% CI=0.22, 0.78), family monthly income 750-1000 birr (AOR=0.61; 95%CI=0.39, 0.92), Child receive pre-lacteal feeding (AOR=1.83; 95%CI=1.28, 2.61) and mothers age of less than 15 years at first birth (AOR=2.4; 95%CI=1.19, 5.09) were significantly associated with stunting. Pre lacteal feeding (AOR=2.12; 95%CI=1.82, 5.31) was statistically associated with wasting.

Conclusion Children in the study area were suffers from a high rate of stunting and wasting. Therefore- especial attention should be given to avoid pre-lacteal feeding and birth before 15 years by empowering women.

Keywords: Undernutrition, Stunting, Wasting, Children
Nutritional Iron Deficiency Anemia: Magnitude and its Predictors among School Age Children, South West Ethiopia: A Community Based Cross - Sectional Study. Amare Desalegn (BSc, MSc), Andualem Mossie (PhD, Assoc professor), Lealem Gedefaw (BSc, MSc) 1Department of Biomedical Sciences, College of public health and medical sciences, Jimma University, Jimma, Ethiopia 2Department of Medical laboratory science and pathology, College of public health and medical sciences, Jimma University, Jimma, Ethiopia

Background: Iron deficiency anemia is a global public health problem affecting more than two billion people worldwide. Iron deficiency in school age children is known to retard psychomotor development, impair cognitive performance, and decrease work capacity. The limited available data on its prevalence and increase of existing risk factors motivated us to undergo the study.

Objective: The aim was to determine the prevalence, severity and predictors of nutritional iron deficiency anemia in school age children.

Methodology: A community based cross-sectional study was conducted on 616 school age children selected by multistage sampling technique. Five (5ml) of venous blood was collected from each child for complete blood count, blood film, serum iron and serum ferritin determination. In addition, 3-4 g of stool specimen was collected from each participant using clean and leak-proof stool cups for intestinal parasitosis. Microscopic examination of hemoparasites particularly malaria and peripheral morphology of the red blood cells were done from stained blood films. Dietary patterns of the study subjects were assessed via food frequency questionnaires. Anthropometrics measurements were also taken. Statistical analysis of the data was done using SPSS V-20.0 for windows.

Result: The current prevalence of anemia was 43.7% and that of iron deficiency anemia was 37.4%. Non-consumption of protein source foods (AOR = 2.30, 95%CI=1.04-5.14), dairy products (AOR = 1.83, 95%CI = 1.14-5.14), discretionary calorie (AOR = 2.77, 95%CI= 1.42-5.40), having low family income (AOR = 6.14, 95%CI = 2.90-12.9) and having intestinal parasites (AOR =1.45, 95%CI = 0.23-2.75) were identified as independent risk factors for iron deficiency anemia.

Conclusion: Iron deficiency anemia is a moderate public health problem in Jimma town school age children. Therefore, emphasis should be made on health education to children and their parents about the causes and possible prevention methods of iron-deficiency anemia.

Keywords: Anemia, Iron deficiency anemia, School age children, Iron
Factors Associated to Develop Anemia among Lactating Mothers in Ethiopia: a Pooled Data Analysis from Two Rounds of Demographic and Health Surveys. Yihunie Lakew1, Sibhatu Beadgilige2, Demewoz Haile3* 1 Ethiopian Public Health Association, Addis Ababa, Ethiopia 2 Independent public health consultants, Addis Ababa, Ethiopia 3 Department of Public Health, College of Medicine and Health sciences, Mekanwun University, Ethiopia

Objective: To identify factors associated with anemia among lactating mothers in Ethiopia.

Design: A cross-sectional secondary data analysis pooled from two rounds of the 2005 and 2011 Ethiopian demographic and health survey (EDHS) was used. Multivariable logistic regression model was applied to determine the factors associated with anemia.

Population: A total of 7,332 lactating mothers (2,285 from EDHS 2005 and 5,047 from EDHS 2011) were included from 11 administrative states of Ethiopia.

Main outcome measures: Lactating mothers considered as anemic if hemoglobin level <12 gram per deciliter.

Results: The overall prevalence of anemia among lactating mothers was 22.1% [95% CI: (21.13-23.03)]. The highest prevalence was 48.7% [95% CI: (40.80-56.62)] found in Somali region, followed by 43.8% [95% CI: (31.83-56.87)] in Afar region. The multivariable statistical model showed that lactating mothers who had husbands attended primary education [AOR=0.79; 95% CI: (0.68-0.91)], had been working in the last 12 months preceding the survey [AOR=0.71; 95% CI: (0.63-0.80)], had normal maternal body mass index (BMI) from 18.5kg/m² to 24.99kg/m² [AOR=0.78; 95% CI: (0.68-0.89)], middle wealth index [AOR=0.83; 95% CI: (0.71-0.98)] and rich wealth index [AOR=0.83; 95% CI: (0.70-0.98)], ever use of family planning [AOR=0.68; 95% CI: (0.57-0.80)], attending antenatal care (ANC) for indexed pregnancy four times or more [AOR=0.73; 95% CI: (0.59-0.91)], experienced time variation between two surveys [AOR=0.73; 95% CI: (0.64-0.85)] and who breastfed for two years [AOR=0.76; 95% CI: (0.66-0.87)] were associated with lower odd of being anemic.

Conclusion: Anemia is highly prevalent among lactating mothers, particularly among pastoralist communities of Somali and Afar. Promoting partner education, improving maternal nutritional status, creating behavioral change to use family planning and ANC services at health facilities are recommended interventions to reduce the prevalence of anemia among lactating mothers in Ethiopia.
Anemia and Risk Factors among Non-Pregnant Women of Childbearing Age in Southwest Ethiopia: A Community Based Study. Yaregal Asres1, Tilahun Yemane1, Lealem Gedefaw1

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Background: Anemia affects one-quarter of the world’s population and non-pregnant women were one of the groups for whom it is common, making it a global public health problem. Anemia in this group of people has a direct impact during pregnancy as beginning pregnancy with depleted iron stores and/or hemoglobin concentration has been shown to increase risk of premature delivery, low birth weight, fetal and maternal mortality.

Objective: We aimed to determine prevalence and risk factors of anemia among non-pregnant women of childbearing age in Jimma Town Southwest Ethiopia.

Methodology: We conducted a community based cross-sectional study from June 26 - August 27, 2013. A total of 441 non-pregnant women participated in the study. We collected socio demographic and related data using structured questionnaire. We also collected four milliliter of venous blood and five gram of stool samples from each study participant for hematological and parasitological analysis, respectively. We performed all descriptive statistics, binary and multiple logistic regression analysis using SPSS-V 16 software.

Result: The overall prevalence of anemia was 16.1% (n=71) with mean hemoglobin concentration of 12.96g/dl (± 1.04) among which 97.2% (n=69) were mildly anemic. Being from age group of 25-36 years old (AOR = 6.53, 95% C.I: 1.82-13.39), lower economic level (AOR=8.84, 95% C.I: 6.47-14.91), illiteracy (AOR = 2.16, 95% C.I: 1.67 - 5.18), having intestinal parasitic infection (AOR = 3.34 95% C.I: 1.66-6.73), more than two sanitary pads usage per day during menstruation (AOR = 3.03 95% C.I: 1.43-6.41) and low body mass index (AOR=4.07, 95% C.I: 1.69-9.84) were found to be risk factors. On the other hand, having knowledge about anemia and contraceptive use were identified as having protective effects.

Conclusions: The prevalence of anemia indicates mild public health importance which shows it was indeed public health problem among the group. Identified risk factors should be considered for prevention and control of anemia among non-pregnant women of childbearing age.

Keywords: Anemia, risk factors, non-pregnant women of childbearing age
Magnitude of Stunting and Associated Factors among 6-59 Month Old Children in Hossana Town of Hadiya Zone, Southern Nation Nationalities and Peoples Region, Ethiopia. Beminet Muges (Bsc), Amsalu Fekke, Solomon Meseret, Institute of Public Health, College of Health Sciences, University of Gondar.

Introduction: Stunting remains a problem of greater magnitude than underweight or wasting, and it more accurately reflects nutritional deficiencies and illnesses that occur during the most critical periods of growth and development in early life. Stunting is one of the most significant public health problems in Ethiopia. Urban areas appear to be the locus of a gradually increasing prevalence of undernutrition among children.

Objective: The study was aimed to assess the magnitude of stunting and its associated factors among 6-59 month old children in Hossana town of Hadiya zone in SNNPR, Ethiopia.

Methods: A community based cross-sectional study was conducted using a systematic random sampling technique with a sample size of 734 children, aged 6-59 months. The structured questionnaires was used to collect data and data was entered into EPI INFO version 3.5.3, 2011. Analysis was done by SPSS version 20 and ENA for SMART, 2011 software. Bivariate and multivariate logistic regression analysis was employed to examine the association between the dependent and independent variables. The statistically significant variables were characterized by a p-value ≤ 0.05 or were significantly different from 1 in which a 95% CI did not contain one.

Results: The study result reveals that 35.4% (34.6%-36.3%; 95% CI) of 6-59 month old children were stunted, with even higher rates among male children (53.1%). Children more likely to be stunted included: those between 24 and 35 months (AOR=2.29;95% CI: 1.10, 4.82), those whose mothers had no education (AOR=5.38;95% CI: 2.27, 12.77), those from a low income household (AOR=3.92; 95% CI: 2.54, 6.06), those who were physically small at birth (AOR=2.10; 95% CI: 1.13, 3.93), having birth order of 4 and above (AOR=2.32; 95% CI: 1.28, 4.21), those who breastfed for longer than 24 months (AOR=2.49; 95% CI: 1.03, 6.00), and those whose mothers did not use a cup to feed their children (AOR=2.08; 95% CI: 1.05, 4.15).

Conclusion: Stunting was a high prevalent problem in the study area. The prevalence, however, was lower than the national estimate (DHS, 2011). The child's age, mother's education level, household income, birth order, size at birth, duration of breastfeeding and cup feeding were found to be associated factors of stunting. All of the factors, except birth order, could be reversed through thoughtful programming. The findings of this study suggest that there is potential need for linking nutrition interventions, especially in the town of Hossana.

Keywords: Stunting.
Anemia and associated factors among school-age children in Filtu Town, Somali region, Southeast Ethiopia. Bekele Gutema\textsuperscript{1}, Wondimamegn Adissu\textsuperscript{2}, Yaregal Asress\textsuperscript{3}, Lealem Gedesar\textsuperscript{2}\textsuperscript{*}

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Background: Anemia is one of the major public health problems affecting more than half of school-age children in developing countries. Anemia among children has been conclusively seen to delay psychomotor development, poor cognitive performance, impaired immunity and decrease working capacity. The purpose of this study is to determine the prevalence and associated factors of anemia among school-age children in Filtu Town, Somali region, Southeast Ethiopia.

Methods: A community based cross-sectional study was conducted from July to August, 2013 in Filtu Town. A total of 355 school-age children between 5-15 years old were included in the study. Socio-demographic data were obtained from each participant using structured questionnaire. Hemoglobin concentration was determined by HemoCue 201\textsuperscript{+} photometer (HemoCue, Angelholm, Sweden) analyzer. Hemoglobin values below 11.5 g/dl and 12 g/dl were considered as anemic for age ranges of 5-11 and 12-15 years, respectively. Anthropometric data were taken from each study participant. Peripheral blood film and stool examination were done for hemoparasite and intestinal parasite screening, respectively. Data were analyzed using SPSS version 16.0.

Results: Over all, prevalence of anemia was found to be 23.66 %. The vast majority (73.81 %) of the anemic children had mild anemia. Moderate and severe anemia accounted for 25% and 1.19% of the anemic children, respectively. Being from a family with low income (AOR = 9.44, 95 % CI: 2.88, 30.99), stunted (AOR = 5.50, 95 % CI: 2.83, 10.72), underweight (AOR = 2.07, 95 % CI: 1.06, 4.05) and having intestinal parasite infection (AOR = 2.99, 95 % CI: 1.05, 8.46) were identified as associated factors for anemia.

Conclusion: Anemia is a moderate public health problem in school-age children for the study area. Interventions targeting nutritional deficiencies and parasitic infections are recommended.

Keywords: Anemia, associated factors, school-age children, Somali Region
Anemia among Pregnant Women in Southeast Ethiopia: Prevalence, Severity and Associated Risk Factors. Filagot Kefiyalew\textsuperscript{1}\textsuperscript{2}, Endalew Zemene\textsuperscript{2}, Yaregal Asres\textsuperscript{2}, Lealem Gedefaw\textsuperscript{2}\textsuperscript{3}\textsuperscript{4}

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Background: Anemia is a significant public health problem in developing countries, particularly in pregnant women. It may complicate pregnancy, sometimes resulting in tragic outcomes. There is a lack of information on the magnitude of anemia among pregnant women in Southeast Ethiopia. The aim of this study is, therefore, to determine the prevalence of anemia and assess associated factors among pregnant women attending antenatal care (ANC) at Bisidimo Hospital in Southeast Ethiopia.

Methods: A facility-based cross-sectional study, involving 258 pregnant women, was conducted from March to June 2013. Socio-demographic, medical and obstetric data of the study participants were collected using structured questionnaire. Hemoglobin was measured using a hematology analyzer and faecal specimens were examined to detect intestinal parasites. Anemia in pregnancy was defined as hemoglobin $<11g/dl$.

Results: Overall, prevalence of anemia was 27.9\%, of which 55\% had mild anemia. Rural residence (AOR =3.3, 95\% CI: 1.5-7.4), intestinal parasitic infection (IPI) (AOR =2.5, 95\% CI: 1.3-4.8) and history of heavy cycle (AOR =2.7, 95\% CI: 1.3-1.7) were predictors of anemia.

Conclusions: This study showed moderate prevalence of anemia among the pregnant women, with a sizable proportion having severe anemia. Routine testing of pregnant women for IPIs and creating awareness on factors predisposing to anemia is recommended.

Keywords: Anemia, Associated factors, Pregnant women, Southeast Ethiopia
Determinants of Acute Malnutrition among Children of Age between 6 to 59 Months in Dubti District, Afar Regional State, Ethiopia: A Case Control Study. *Anwar Said*,
Berehan Seyoum* and Firehiwot Mezfin* †College of Medical and Health science, Wollega University †College of Medical and Health science, Haramaya University.

**Introduction:** In developing countries acute malnutrition continues to be the most important risk factor for illnesses and death especially among young children. In sub-Saharan Africa, nearly 1 in 10 children under the age of five (9 per cent) were acutely malnourished in 2011. Ethiopia is one of the countries with very high burden of acute malnutrition which is among the top ten most affected countries by acute malnutrition including 10 per cent of under five children were acutely malnourished.

**Objective:** To assess the prevailing determinants of acute malnutrition among children of age between 6 to 59 months in Dubti district, Afar Regional State Ethiopia.

**Methods:** A health facility based unmatched case-control study design was conducted. The cases were 140 acutely malnourished children of age between 6 to 59 months and the controls (n=280) were children of age between 6 to 59 months without acute malnutrition. The study was conducted from Jan 20 to Feb 20/2014 in two health centres and one hospital of Dubti district.

**Results:** Those children aged between 12-23 months were more likely to be acutely malnourished than those with in the category of 24 to 59 months (AOR=10.5, 95% CI = (4.935, 22.343)). Rural residence (AOR=2.42, 95% CI= (1.22, 4.798)), married and in union (AOR=0.366, 95% CI (0.163, 0.823)), paternal illiteracy (AOR= 2.468, 95% CI = (1.321, 4.611)) and household monthly income of less than 1000 birr (AOR=3.981, 95% CI (2.059, 7.698)) were the socio economic and demographic factors for acute malnutrition. Regarding child characteristics and feeding practice; those children whose food prepared and served not separately from the family (AOR=2.185, 95% CI= (1.109, 4.304)), vitamin A supplementation (AOR=0.52, 95%CI= (0.286, 0.935)) and being first child (AOR=0.059, 95% CI= (0.015, 0.234)) were strongly associated with acute malnutrition. Mothers who were engaged in fetching water from walking a distance of less than or equal to 30 minute (to and from) are less likely to have acutely malnourished child than long distance fetchers.

**Conclusion and Recommendation:** The finding of this study confirms the association of acute malnutrition with socio economic and feeding practice of the child. As a recommendation improving practice of parents on appropriate feeding practices and creating awareness related to risk factors of acute malnutrition should be strengthened.

**Keywords:** Dubti district, acute malnutrition, determinants.
Effect of Nutrition Education on Perceived Barriers of Pulse Processing and Consumption by Households at Hurufalole KEBELE, South East Oromia, Ethiopia. Sara Fikre1, DVM, BA & MS; Gordon Zollo1, Adisalem Medhin2 and Afework Kebelu3 1 School of Food Science and Nutrition, Hawassa University, P.O. Box 05, Hawassa;2 Colleges of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon SK, Canada S7N5C9 3 Food Science and Human Nutrition Department, University of Florida, Gainesville, USA

Background: Pulses have an important role in Ethiopian agriculture and food production, particularly in rural and peri-urban communities. Beliefs that consider pulses a taboo food, mainly because of limited knowledge on their nutritional values, prevail among certain households. Consumption of unprocessed grain legumes are believed to result in abdominal distension, flatulence and diarrhea. Improper food processing and consumption at household level aggravate the problem. Appropriate nutrition education is important to reduce and minimize these concerns. Traditional food processing and preparation methods including soaking, germination, frying, fermentation, boiling, roasting, cooking and combinations of these are known to reduce anti-nutritional factors.

Objectives: This study was undertaken to improve knowledge, attitude and practice on the processing and consumption of pulses.

Methods and Methodology: A cluster randomized control trial with pre-test and post-test measures was used. The intervention and control kebeles (lowest administrative unit in Ethiopia) were selected as study groups/clusters of 310 (155 each) household-women by simple random sampling. Measurements were administered at baseline, third and sixth months of intervention. Nutrition education was delivered for six months. Knowledge, attitude and practice were assessed by administering semi-structured questionnaire and FGD (focus group discussions). A food frequency questionnaire (FFQ) survey was employed to determine study consumption patterns before and after intervention. Data were analyzed with standard statistical tests using SPSS (version 20).

Results: Mean (SD) KAP, both knowledge and practice scores, in women receiving the intervention were improved from (baseline, mid-line and end-line) 4.62 (3.56), 22.10 (5.56) to 25.15 (2.86) and (baseline and end line) 4.62 (3.55) to 31.55 (6.08) respectively. Significant differences were shown in knowledge and practice (p<0.001) and changes in attitude among the intervention groups compared to baseline and control groups. The mean (SD) frequency of household pulse consumption pattern after intervention increased from 5.29 (4.3) to 12.44 (4.8).

Conclusions: The nutrition education intervention on household processing and consumption is necessary, particularly for women, since they are in charge of food selection and preparation for the family.

Key words/phrases: Rural women, nutrition education, processing and consumption, pulses, food frequency.
Prevalence of Anemia before and after Initiation of Highly Active Antiretroviral Therapy among HIV Positive Patients in Northwest Ethiopia: a Retrospective Study.  

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**Background:** Human immunodeficiency virus associated anemia is common and it is a challenge for prognosis of HIV positive patients. It is stated in different literature that the prevalence of anemia due to HIV before highly active antiretroviral therapy (HAART) initiation is more prevalent than after HAART initiation. Thus this study aimed to assess anemia prevalence before and after initiation of HAART among HIV patients attending university of Gondar hospital from 2008 – 2013.

**Methods:** A retrospective study was conducted by collecting data from antiretroviral clinic of University of Gondar Hospital from January 1, 2008 to December 30, 2013. Data was collected by using data collection sheet which contains age, sex, regimen type, hematological parameters and CD4 cell count. Data were analyzed using SPSS version 20. In order to compare means paired t-test was used. P- Value < 0.05 was considered as significant.

**Results:** Prevalence of anemia before and after HAART initiation was 21.2% and 11.5% respectively. There is a significance difference in CD4 cell count, hemoglobin and hematocrit values on patients before and after HAART initiation (P < 0.001). Opportunistic infection and CD4 cell count were associated with prevalence of anemia before HAART initiation.

**Conclusion:** There was a decline in the prevalence of anemia and increment of mean CD4 cell count among HIV infected patients after HAART initiation. HIV patients are recommended checking up their CD4 cell counts regularly and starting HAART when it is appropriate with regular follow-up.

**Keywords:** HIV, Anemia, HAART
Prevalence and Associated Risk factors of Anemia among HIV Infected Children Attending Gondar University Hospital, Northwest Ethiopia: A Cross Sectional Study. Bamleku Fenguaw*, Meseret Alem, Mulgeta Melku, Zelalem Addis, Betulhem Terefe, Gashaw Yitayew * School of Biomedical and Laboratory Sciences, College of Medicine and Health Sciences, University of Gondar

Background: Anemia is the most common hematological abnormalities in HIV patients and it is a wide spread public health problem. The World Health Organization estimates that over 2 billion people are anemic worldwide with more than 100 million of these anemic children living in Africa.

Objective: To determine the prevalence and associated factors of anemia among HIV infected children aged 6 months to 14 years in Gondar University Hospital ART Clinic.

Methods: A cross-sectional study was conducted from October 2012 to May 2013 on HIV infected Children attending Gondar University Hospital ART clinic. Data of socio demographic characteristics and clinical conditions of the study subjects was collected using structured pretested questionnaire. Hematological parameters and CD4 cell count were determined by cell Dyne 1800 and FACS count machine respectively. Data was analyzed by SPSS version 20 statistical software and X² was used to assess association. P-value < 0.05 was considered as significant.

Result: Anemia was present in 16.2% (43 /265) of children, 60.5% of them had mild anemia, 37.2% had moderate anemia and 2.3% had severe anemia. About 46.5% of anemic children had normocytic-normochromic anemia followed by macrocytic-normochromic anemia (39.5%). In this study anemia was associated with not taking green leafy vegetables, not being on HAART and being on cotrimoxazole treatment. But there was no association with age, sex, residence, WHO clinical stage, opportunistic infections, regimen type, intestinal parasitic infection and CD4 count percentage.

Conclusion: Majority of HIV positive patients in Northwest Ethiopia have mild type of anemia and the increase in prevalence of anemia with being on cotrimoxazole and not taking HAART. Therefore, early diagnosis and treatment of anemia is essential in these patients.

Keywords: Anemia, HIV, Risk factors, Children
Pre-Art Nutritional Status and its Association with Mortality in Adult Patients Enrolled on Art at Fiche Hospital in North Shoa, Oromia Region, Ethiopia: A Five Year Retrospective Cohort Study. Kokeb TMariam, MPH, College of Medicine and Health Sciences, Ambo University; Negga Baraki, Asst. prof, College of Health and Medical Sciences, Haramaya University; Haji Kedir, PhD, College of Health and Medical Sciences, Haramaya University.

Background: HIV compromises the nutritional status of infected individuals and in turn, malnutrition worsens the effects of the infection itself by weakening the immune system consequently accelerating disease progression and death. However, few studies have examined the association between nutritional status at ART initiation and early mortality.

Objective: General objective of the study is to assess pre-ART nutritional status and its association with mortality in adult patients enrolled in ART between August 01, 2006 to September 30, 2011 at Fiche Hospital in North Shoa, Ethiopia.

Methods: A retrospective cohort study was conducted among 489 ART enrolled adult patients between August 01, 2006 to September 30, 2011 in Fiche Hospital. The most recent laboratory results before starting ART were used as a baseline value. Study participants were selected by using systematic random sampling method by which one random number in the patient’s ART unique identification numbers as a starting point. Actuarial table was used to estimate survival of patients after ART initiation and log rank test was used to compare the survival curves. Cox proportional-hazard regression was used to calculate the bivariate and adjusted hazard rate (AHR) and then determine independent predictors of time to death. A p-value of <0.05 was considered.

Results: Most of the study subjects were females 254(51.9%). The overall mean (±SD) age at ART initiation was 34.36 ± 9.24 years. A total of 489 patients were included in the analysis, of whom 87 died during a median study follow-up of 22 months. The estimated mortality among malnourished was 21%, 28%, 33%, and 38% at 5, 10, 15, and 25 months respectively with mortality incidence density of 5.63 deaths per 100 person years. The independent predictors of mortality were: BMI <18 kg/m² (AHR=5.4 95% CI: 3.03–9.58), baseline ambulatory functional status (AHR=3.48; 95% CI: 2.49, 5.0), bedridden functional status (AHR=4.78; 95% CI: 2.14, 10.65), WHO clinical stage III (AHR 2.21; 95% CI: 1.46 – 4.21), WHO clinical stage IV (AHR 4.05; 95% CI: 1.50, 10.97) and CD4 count less than 200 cells/µl (AHR=2.95, 95% CI: 1.48, 5.88), two and more opportunistic infections (AHR: 2.30; 95% CI: 1.11, 4.75).

Conclusion: Malnutrition at the time of starting ART was significantly associated with decreased survival. Provision of nutritional support in conjunction with an early start of ART and the food by prescription initiate should be further strengthen.
Predictors of Survival to Recovery in Children with Severe Acute Malnutrition Treated at Outpatient Therapeutic Care Program in Southern Ethiopia: A Retrospective Cohort Study. Melkamu Merid, MPH in Epidemiology, Lecturer at Haramaya University, Department of Public Health, Haramaya University; Nigussie Deyessa, MD, MPH, PhD; Balewjiige Sileshi, MPH in Epidemiology

Background: Outpatient therapeutic care program of children with severe acute malnutrition has been integrated to the primary health care unit in Ethiopia. But there is a dearth of information on the outcome of the program after its decentralization to a health post level in the country. Therefore this study was aimed to assess predictors of survival to recovery in children treated at outpatient therapeutic care program.

Method and Materials: Institution based retrospective cohort study was conducted on 348 severely acutely malnourished children using a data available from Jan.1/ 2011 to Jan.1/ 2013 in twelve randomly selected health posts. The outcome variable was time to recovery. Life table analysis and Kaplan-Meier product limit, the log rank test and Cox proportional-hazard regression were used to estimate the results. All statistical tests in this study were declared significant at P<0.05.

Result: A total of 348/374 (93.05%) patient cards were reviewed. 274 (78.74%) children were recovered. Admission to the therapeutic care program was significantly higher during the summer and spring seasons and there was high number of readmission. The overall median time of recovery was 42 days. It was significantly higher for children with marasmus. Protracted recovery time was more likely with increasing age and being marasmic (AHR=0.98, 95% CI [0.97, 0.99]; AHR=0.52, 95% CI [0.39, 0.69]) respectively. Relatively early recovery was observed among children having a weight gain of ≥ 3.21 gm/Kg/day (AHR=2.43, 95% CI (1.83, 3.24)). For a unit increase in MUAC (mid-upper arm circumference) gain (mm/day), children were 2.33 times more likely to recover faster compared to the reference group (AHR=2.33, 95% CI (1.37, 3.94).

Conclusion: Being marasmic and older age delayed recovery while weight and MUAC gain were identified as predictors of early recovery. Hence it is important to improve weight and MUAC gain with due emphasis given to the age of the children and type of severe acute malnutrition.
Household Food Insecurity is Associated with Under Five Child Stunting & Wasting in Sekela District, Western Ethiopia. Ermiyas M. and Bezatnu M.

Background: Child malnutrition and food insecurity remain main problems in Ethiopia. Household food insecurity can exert its effect on nutritional status of children by limiting dietary intake. However, there is paucity of data in Ethiopia and studies across different parts of the world revealed mixture of evidences on the relationship between the above two.

Objective: The objective of this study was to assess the association between food insecurity and under five child stunting and wasting in Sekela District.

Method and Materials: Five hundred seventy six mothers/caregivers living in four randomly selected kebeles in Sekela District were interviewed using structured questionnaire during February of 2014. Household food access insecurity was measured using HFAIS. The height and weight of children were taken accurately to the standard; anthropometry indices were calculated & interpreted using WHO 2006 cutoff point. After checked for completeness and consistency data was entered onto Epi.Data 3.2. Then, it was exported to SPSS 21.0 for descriptive and logistic regression analysis.

Result:A total of 555 households with children aged 6-59 months participated in the study. Off all children; 275 were males and 280 were females. The children mean age was 31.39+13.64 months. The prevalence of stunting and wasting was 36.2% and 11% respectively. The mean household food access insecurity score was 8.16+6.01 and the prevalence of food access insecurity measured by household food access insecurity scale was 74.1%. Food insecurity was the predictor of stunting and wasting. The predictors of stunting were sex of the child, age, toilet use, colostrum feeding, episode of diarrhea, upper respiratory infection and the child experience of fever was predictor of acute malnutrition.

Conclusion:In the main, food insecurity, unhygienic environment and inadequate child care were important determinants of child stunting and wasting in the study setting. Thus, there should be multi sectorial community based nutrition interventions to curtail under nutrition and household food insecurity in the locality.

Keywords: Household Food insecurity, under five children, Stunting, Wasting, Ethiopia

Studies examining vitamin D status among children living in sunny climates indicated that children did not receive adequate vitamin D, however, this has not been looked at among children living in Ethiopia. In this study, we determined vitamin D deficiency and its predictors among school children aged 11-18 years, examining circulating 25-hydroxy vitamin D [25(OH)D]. The school-based cross-sectional study was conducted in schools in Adama Town (n=89) and in rural Adama (n=85) for a total sample of 174. Students were randomly selected using multi-stage stratified sampling method from both settings. Socioeconomic status of parents and demographic, anthropometric, sun exposure status and blood 25(OH)D levels were obtained. Vitamin D deficiency, defined as circulating levels of 25(OH)D <50 nmol/L, was found in 42% of the entire study participants. Prevalence of deficiency was significantly higher among students in urban setting compared to rural (61.8% vs 21.2%, respectively, p<0.001). After controlling for potential confounders using multivariable logistic regression model, duration of exposure to sunlight, amount of body part exposed to sunlight, place of residence, maternal education, body fatness, having TV/computer at home and socioeconomic status were significant predictors of vitamin D deficiency. The findings suggest that Vitamin D deficiency was prevalent in healthy school children living both in urban and rural areas of a country with abundant year round sunshine providing UVB, with the prevalence of deficiency being significantly higher among urban school children who were less exposed to sunlight. Behaviours change communications to enhance exposure to ultraviolet light is critical to prevent vitamin D deficiency in tropical country like Ethiopia.

Keywords: Vitamin D deficiency, School Children, Ethiopia.
Assessing the Impact of Integrating Nutrition Education of Infant and Young Child Feeding into the Community Management of Acute Malnutrition in Dilla Zuria Wereda, Gedeo Zone, Southern Ethiopia; An Intervention Study. Marenwol Erungo, MSc, Institute of Medicine and Health Science, Debre Berhan University; Habtamu Fekadu, MD, MSc, Empowering New Generation to Improve Nutritional and Economic opportunity/ United States Agency for International Development(ENGF/USAID) Project, Save the Children, Addis Ababa; Getenet Berhanu, MSc, School of Nutrition, Food science and Postharvest Technology, Hawassa University

Background: Adequate nutrition during infancy and early childhood is fundamental to the development of each child's full human potential. Severe acute malnutrition affects approximately 20 million children under five years of age and contributes to more than 1 million child deaths in the world each year.

The aim of this infant and young child feeding educational intervention was to determine the effect of its integration into the community management of acute malnutrition on knowledge and practice of mothers as well as the nutritional status of young children.

Method: A quasi experimental design was employed to test the hypothesis that the integration of infant and young child feeding nutrition education into the community management of acute malnutrition will have an effect on mother's knowledge and practice. A quantitative baseline survey was conducted in 100 mother-child pairs on socio-demographics, food security status, knowledge and practices of complementary feeding, food group intakes of children, diet diversity score and anthropometric data of children. A key informant interview with the help of health extension workers concerning complementary feeding practices and a barrier to prepare complementary foods was conducted. This helped in the development of intervention strategies and understanding the local context of young child feeding.

Result: An education intervention comprising 8 specific messages for the intervention group, held twice a month for 6 months, was conducted. At the end of the intervention period knowledge was significantly improved (p<0.001) in the intervention group. Dietary diversity was improved in the intervention group as compared to the control group. Wasting and underweight decreased from 12.5 % to 4.76 % and from 31.25 % to 14.28%, respectively.

Conclusion: Based on the findings of this educational intervention, to see more sustained results in changed knowledge and practice of mothers and changed nutritional status of children, further study is needed with large sample size and longer duration of intervention period. Community based nutrition program is one of the packages of health extension program, if the intervention is implemented using it, it could make sure greater sustainability of the intervention over the long term.

Keyword: Integrated nutrition education, Quasi experimental study, infant and young child, community management of acute malnutrition
Health Service Quality and Resource

Utilization of Environmental Health Services of Urban Health Extension Program and Associated Factors in Debretabor Town, North West Ethiopia. Yilka Tafere, Debre Tabor, Mirkuzie Woldie and Henok Assefa

Background: Studies in a number of countries have shown that wherever indiscriminate waste disposal is high, infant and child mortality rates are high. Although utilization of environmental health services is an important indicator for measuring success of the health extension program; data on environmental health services of urban health extension program are scarce in the study area and elsewhere in Ethiopia.

Objective: To assess utilization of environmental health services of urban health extension program and associated factors in Debretabor town, Amhara region, Ethiopia.

Methods: A community based cross sectional study was conducted in Debretabor town from September 1-30, 2013. A total of 422 households were included in the study using systematic sampling technique. Data were collected using structured questionnaire and analyzed using SPSS version 16.0. Degree of association between independent and dependent variables was assessed with a 95% confidence level and p-value less than 0.05 was used to detect statistical significance. The findings of quantitative data were triangulated with the qualitative one.

Result: In this study 69.8% and 65.5% of households practiced proper solid and liquid waste management mechanisms respectively. Ninety three point five percent of households have latrine. Among the households with latrines, 76.5 % of the respondents have hand washing devices. Graduated as model family was predictor for availability of latrine and hand washing facilities respectively. Income was found to be predictors for liquid waste management, and availability of latrine. House ownership was found to be predictor for availability of latrine. Educational status of respondents was found to be predictors for liquid waste management and availability of latrine. Financial problems, lack of water, lack refreshment training, were mentioned as reasons for not utilization of environmental health services of urban health extension program.

Conclusion: Solid and liquid waste management practices were lower than from the target set in the health extension program implementation manual at least 75% of the package should be implemented. Latrine coverage was relatively lower from the national target of 100%, still there are households that use open defecation. Educational status, house owner shipe, income and graduated as model family were main factors affecting environmental health services. Improving socio economic status of households, provision of continuous advice and technical support at household level on the utilization of environmental health service are recommended.
Assessment of Attitude of Non-Laboratory Health Professionals Towards the Profession of Medical Laboratory in Jimma University Specialized Hospital and Training Health Centers: Southwest- Ethiopia. Awoke Dereje, MSc, College of Medical and Health Sciences, Department of Medical Microbiology, Immunology and Parasitology, Debre Tabor University; Estifanos Kebede, MSc, Faculty of Medical and Health Science, School of Medical Laboratory Sciences, Jimma University.

Introduction: The role of team approached medical practice is to relief patients. In today’s era of rapidly evolving medical research and technology the medical laboratory plays an integral role in the health care system. Despite this role, the tendency of giving less value to the profession by some health practitioners might decrease health team mobilization for patient care system.

Objective: to assess attitude of non-medical laboratory health professionals towards the profession of medical laboratory.

Methods: A cross sectional survey was carried out among health professionals working at Jimma University Specialized Hospital (JUSH) and Training Health Centers (THCs), from February 21 to March 21, 2007. Anonymous structured self-administered questionnaire was used to generate data. Generated data were compiled and analyzed with descriptive statistics. Cross tabulation and statistical tests also made to look for association of certain variables of attitude.

Result: This study revealed that 75% (n=108) of respondents have shown favorable attitude towards the laboratory profession. On top of this, the study also showed that 85.7% (n=21), 81.3% (n=16) and 72% (n=44) of physicians, health officers and nurses respectively with favorable attitude. Majority of respondents (68.5%) believed that laboratorian contribution to good patient outcome is very important. However, 11.1% of respondents shown unfavorable attitude towards laboratory professionals and indicated some unwelcome behaviors and their possible causes.

Conclusion: The observed unfavorable response may affect team spirit and quality care received by patients. Therefore, continuous efforts should be made to equip laboratories with adequate number of laboratory personnel, equipment and supplies, and moreover to train medical laboratory students focusing on practical aspects to produce confident and capable staffs. Promotion of team training may enhance team spirit among the health care team which ultimately improves the quality of patient care.

Keywords: Attitude, Laboratorians
Level of Job Satisfaction and Scales of Satisfaction Measurement Associated With Job Satisfaction among Health Professionals Working in Debre Markos Referral Hospital, North West, Ethiopia, 2014. Nuriyin Aboel, Getnet Feretebob, Senait Alemu, Birhanu Fantahun, Hemok Mahgetu 'Nursing Department, College of medicine and Health Sciences, Debre Markos University, Debre Markos, Ethiopia 'public health Department, College of medicine and Health Sciences, Debre Markos University, Debre Markos, Ethiopia

Background: The available literature consistently reports that many African health professionals are dissatisfied with their current situation. The aim of this study was to assess level of job satisfaction among health professionals working in Debre Markos referral Hospital, North west, Ethiopia, 2014

Methods: Institutional based cross sectional study design was conducted among 165 different categories of health professionals. Data were collected using Minnesota Satisfaction Questionnaire (MSQ) and entered into Epi data version 3.1 then exported to SPSS version 16 for further analysis.

Result: A total of 165 health professionals gave complete response. Some 94 (57%) of them were nurses in profession. Level of job satisfaction were calculated as highly satisfied 35 (21.2%), averagely satisfied 130 (78.8%) and none of the respondents were at lower level of satisfaction according to the above definition. Health professionals were highly satisfied with utility and ability 79 (47.9%) and the social service they provide 79 (47.9%) and lower level of satisfaction with compensation 29 (17.6%) and job advancement 18 (10.9%).

Conclusion and recommendations: Majority of health professionals were at average level of job satisfaction. Lack of compensation and lack of job advancement, working condition were significant dissatisfying factors. Social service they provide to others, ability and utility, relationship with coworkers were most significant satisfying factors. The federal ministry of health and regional health bureau should give due attention for health professionals compensation mechanism through intensified study on de-motivating factors regarding payment. Satisfying and dissatisfying factors should be treated accordingly.

Keywords: Job, satisfaction, Debre markos hospital, health professionals
Determinants of Maternal Health Care Utilization in Holeta Town, Central Ethiopia. Kidist Birmeta

Background: In developing countries a large number of women are dying due to factors related to pregnancy and child birth. Implementing and assuring utilization of maternal health care services is potentially one of the most effective health interventions for preventing maternal morbidity and mortality. However, in Ethiopia the utilization of maternal health care is low.

Methods: A cross-sectional study was conducted from January 20 to February 20, 2012 in Holeta town, central Ethiopia, to assess the determinants of maternal health care utilization among women who had given birth in the past three years prior to the survey. Structured questionnaire and focus group discussion guides were used for data collection. Data were collected from a sample of 422 women in the town. Descriptive, bivariate and multivariate logistic regression analyses were conducted. Statistical tests were done at a level of significance of $p < 0.05$.

Results: The study revealed that 87% of the women had at least one antenatal visit during their last pregnancy. Among the antenatal service users, 33.7% had less than four antenatal visits. More than half of the antenatal care (ANC) attendants made their first visit during their second and third trimester of pregnancy although WHO recommended ANC should be started at the first trimester of the pregnancy. There was a significant association ($p < 0.05$) between ANC attendance and some demographic, socio-economic and health related factors (age at last birth, literacy status of women, average monthly family income, media exposure, attitude towards pregnancy, knowledge on danger signs of pregnancy and presence of husband approval on ANC). The study also revealed that about 61.6% of the women had given birth in the health institutions. Parity, literacy status of women, average monthly family income, media exposure, decision where to give birth, perception of distance to health institutions (HI) and ANC attendance were found to be significantly associated ($p < 0.05$) with delivery care (DC) attendance.

Conclusions: The utilization of ANC and DC service is inadequate in the town. The utilization of ANC and DC were influenced by demographic, socio-economic and health related factors. Improving the status of women by expanding educational opportunities, strengthening promotion of antenatal and delivery care by enhancing community awareness about the importance of ANC and DC are recommended.

Keywords: Antenatal care, Delivery care, Holeta town, Ethiopia
What are the Determinants for Voluntary Blood Donation in Bahir Dar City? A Case Control Study.  Berhanu Elyas Feleke; Gedefaw Abejie Yekadu; Bahir Dar University College of Medicine and Health Science Department of Public Health, Bahir Dar Ethiopia; Bahir Dar University College of Medicine and Health Science Department of Public Health, Bahir Dar Ethiopia.

Introduction: Blood is vital fluid found in human beings and essential for maintenance of the delivery of oxygen and nutrients at normal level and to remove the waste products of metabolism. The amount of blood may be depleted by disease condition or accidental trauma. In this case, unless the depleted blood is replaced, the health of the patient will be endangered. Blood for replacement must be obtained from Voluntary donors; but most people in Bahir Dar city are not voluntary to give blood to the blood bank. There is no research done to assess why people are not voluntary to give blood. Therefore, this study was done to identify determinants for voluntary blood donation.

Objective: the objective of this study was to identify determinants for voluntary blood donation in Bahir Dar city.

Methodology: unmatched case control study design was used. Sample size was calculated using Epi-info with the following assumptions: 95% confidence interval, 80% power, control to cases ratio of 2:1, expected frequency of exposure in the control group 50%, minimum detectable odds ratio of 2, frequency of exposure in the case 66.67% and 10% contingency. Finally 109 cases and 218 controls were included. Data were entered to the computer using Epi-info and analyzed by SPSS. Adjusted Odds ratio and 95% confidence interval were used to identify the determinants.

Result: in this study, sex [AOR 2.66; (95% CI, 1.03-6.88)], occupation [AOR 18.56 ; (95% CI, 6.26-55.09)], negligent [AOR 0.12 ; (95% CI, 0.05-0.31)], lack of information [AOR 0.24; (95% CI, 0.1-0.58)], the presence of convenient place [AOR 11.36; (95% CI, 3.61-35.75)], fear [AOR 0.26; (95% CI, 0.12-0.61)] and lack of opportunity [AOR 0.23; (95% CI, 0.1-0.52)] were identified as determinants of blood donation.

Recommendation: The national blood bank should work strongly on awareness creation. The ministry of health and the other partners should work strongly to make blood collection place convenient.

Keywords: Voluntary Blood Donation, Bahir Dar, Ethiopia
Addressing Equity through State sponsored Health Insurance Scheme and Implementation Challenges; a Study among Cardiac patients in Kerala, South India.  

Dr. Devi Nair, Asst. Professor in Health Economics, College of Public Health and Medical Sciences Jimma University, Ethiopia

**Background:** Diseases are creating sudden economic shock to households as well as it leads to out of pocket expenditures, undermines income generation and future economic welfare. Non communicable diseases especially cardiac diseases are creating major public health challenge in Kerala. When people are poor and out of pocket spending is high, it can lead to debt and forced to adopt coping mechanisms. Consequently many poor people do not have the access or go for sub standard care. Low public health spending, high out of pocket payments, lack of comprehensive risk pooling mechanism, etc. affect the equity in health financing of India. So, the government in response to these in efficiencies and a move towards universal health coverage, introduced a community based health insurance scheme in 2008. Introduction of this scheme is designed to improve health care utilization through balancing demand and supply effects of members, healthcare providers and insurance scheme.

**Objectives:** This study is trying to document 1. The demand side and supply side factors affecting the Utilization of cardiac care through Comprehensive Health Insurance scheme (CHIS) in Kerala, 2.To explore the Implementation challenges of CHIS.

**Methods:** The study uses an exploratory case study design. Both quantitative and qualitative methods used. A community based cross sectional survey conducted among 150 insured households supplemented with qualitative data obtained from in-depth interviews and key informants interviews. A variety of stakeholders were interviewed using a combination of purposive and snowball sampling to trace out the supply side issues. In depth group interviews conducted on cardiac patients to document the demand side factors affecting utilization of the scheme.

**Results:** Majority of the respondents were females and 97.4% from BPL families. Main source of income of 40% households were from daily wages and don’t have any other formal insurance coverage. About 30.4% people utilized the service. The major demand side factors traced out through in depth group interviews are (1) lack of awareness regarding the benefits of the scheme, (2) outpatient care is excluded, (3) coverage is not enough, (4) provider choice is limited, (5) not happy with the public health facilities etc. The supply side factors are (1) delay in getting funds from government, (2) less incentives, (3) over work load etc. Moral hazards were less compare to other insurance schemes.

**Conclusion:** Poor people were benefitted through the scheme, but delay in settling finds. Coverage is not enough to protect cardiac patients from catastrophic spending. Gender equity is addressed. Real beneficiaries were not identified and included in the list. So income based equity is questionable.

**Keywords:** Community based health insurance, catastrophic expenditure, Equity
Inequitable Reproductive, Maternal, Neonatal and Child Health (RMNCH) Care Services in Ethiopia: Results from an in-depth analyses of nationally representative datasets between 2000 to 2014. Taddese Alemu', Mekonen Taddese, Tsegaye Demisie, Nigussie Mekonen And Mohamed Yassin

**Background:** Ethiopia is one of the countries achieving MDG4 in 2012. Conversely, disparities between various wealth quintiles, residence areas and regions with their effect on child survival is not well studied. The objective for this study is to determine level of inequalities using various equity measures.

**Methods:** We conducted an in-depth analysis of *nationally representative datasets between 2000 to 2014* through retrieval and criteria based assessment relevant to RMNCH in Ethiopia. Co-coverage, Composite coverage, Concentration index of inequality(CII) and Slope Index of inequity(SII) are used to measure levels of inequity in RMNCH services utilization.

**Results:** Disparity in utilization of key RMNCH services across various stratifies studied was evident. In 2011 alone, the calculated composite coverage index of eight key interventions across wealth quintiles ascertained that the richest average triples the poorest in receiving essential RMNCH services. Similarly, the equity variation by the number of interventions received (co-coverage) remains the same between 2000 to 2011. Furthermore, a big disparity by RMNCH coverage across regions and residential areas is also observed. Unlike big cities and regions, emerging pastoralist regions had quite low coverage of key RMNCH interventions and worsening of under five mortality from time to time. In this regard, as high as 15% of the rural, but less than 3% of eligible urban population received no (zero) intervention.

**Conclusions and Recommendations:** Even if Ethiopia is successful in rapidly reducing under five mortality ahead of MDG timeline, inequality between the poor and rich; rural and urban and across various regions remains a major concern for Ethiopia. Therefore, Dealing with this aspect will not only assure fairness in access to health services, but also will greatly contribute to the overall picture of the under five mortality rate.

**Keywords:** Equity, Ethiopia, RMNCH, disparity, health care
Determinants of and Opportunities for Continuing Education Among Health Care Professionals in Public Health Care Institutions in Jimma Township, Southwest Ethiopia. Netsanet Fentahun, MPH, Assistant professor, Jimma University; Ashagre Molla, MSc.

**Background:** An effectively prepared and continually updated workforce of health professionals is essential to maintenance and improvement in patient care. The major goal of continuing education is to improve and promote quality care. Continuing education is also important to an organization's strategic plan because of its positive influence on the quality of care provided. The purpose of this study was to identify the determinants of and opportunities for continuing education among health care professionals at public health facilities in Jimma township.

**Methods:** A cross-sectional study of 319 health care professionals working in the public health facilities of Jimma township was conducted from January 10, 2012 to February 28, 2012. A self-administered questionnaire was used to collect the data. First, descriptive analysis was done to describe the characteristics of the study participants. Finally logistic regression was then used to determine the independent predictors of continuing education.

**Results:** Only 70 (25%) of the study participants were participating in continuing education. As working experience increased, participation in continuing education did not steadily increase. The working hours per week were higher for diploma holders than for those with any other qualification. One hundred and fifty-three (71.8%) participants mentioned lack of support from their current employer as the reason for not participating in continuing education. Health care professionals with a lack of support from management were 2.4 times more likely not to participate in advanced education. Health care professionals with lack of funding were 0.3 times less likely to participate in advanced education. Health care professionals with lack of resources other than financial were 2.2 times more likely not to participate in advanced education.

**Conclusion:** Participation of health care professionals in continuing education is low in Jimma township. The hospital management and town health office should support health care professionals in pursuing advanced education.

**Keywords:** health care professionals, continuing education, public health institution
Assessment of the Level of Satisfaction and Associated Factors among Clients Attended Antenatal Care Clinics in Public Health Facilities of North Shewa Zone; North East Ethiopia: A Cross Sectional-Facility Based Study. Simachew Chokol, BSc in PH, MPH, Intra Health International Organization; Endawoke Amsalu, PH, MPH; Worku Awoke, BSc; MSC; Simachew Chokol, BSc, MPH.

Background: Antenatal care is one of the evidence based interventions to decrease the probability of bad health outcomes for mothers and their newborns. Increment in the flow of antenatal care, however, relies on the level of satisfaction during each antenatal care visit since those that are not satisfied may not come back again and recommend others.

Objective: This study was aimed to assess the level of satisfaction and associated factors among antenatal care clients of North Shewa Zone, Amhara region.

Materials and Methods: A facility based cross sectional descriptive study was conducted in randomly selected six health Centers and two hospitals of North Shewa, North East Ethiopia, from April to June 2014. To measure the indicators, the data was collected from 825 ante natal care attendants at exit interview using structured interviewer administered Questionnaire through systematic random sampling.

Sampling Method: Multi-stage sampling technique was used to conduct this study. First, the study sites were selected through stratified sampling technique as rural health centers, urban health centers, District hospitals and zonal hospital. Then, the respective wards and health institutions were selected by simple random sampling technique. Finally systematic random sampling technique was used to select the study participants. Mothers were interviewed at exit of ANC rooms using a pretested and structured questionnaire. The data were analyzed using SPSS version 20. Odds ratio was calculated with 95% confidence intervals; P-values less than 0.05 were considered as statistically significant.

Result: This study showed that the overall satisfaction was 64%. Fourth visit clients were about 5 times more likely to be satisfied (AOR= 5.4, 95%CI [1.7, 17.12]) than first visits. Delay in the registration process (AOR= 3.02, 95%CI {1.84, 4.95}), long laboratory waiting time (for 1-2 hours) (AOR = 0.45, 95% CI {0.27, 0.75}), lack of the ordered drugs within the facilities (AOR= 0.236, 95%CI {0.103, 0.54}) and poor toilet cleanliness (AOR= 0.185, 95%CI {0.103-0.313}) were related to client satisfaction. This study also illustrated that the ability of clients to entertain questions (only 74.3% were fully satisfied) and involvement of clients for decision making (only 73.3% were fully satisfied) were found to be lower among the provider related aspects of care.

Conclusion: Less than two third (64%) of the clients were satisfied which is lower as compared to many other client satisfaction assessment studies. Moreover; delay in registration, cleanliness of the different service areas, prolonged laboratory waiting time and shortage of drugs are significant causes of dissatisfaction in north Shewa.

Conclusion: This study indicated that the good knowledge level of reproductive age women about obstetric causes of maternal mortality was low (49.6%), Therefore, the identified factors that affect knowledge should be addressed through maternal and child health services by designing an appropriate strategies including provision of targeted information, education and communication.

Keywords: Client satisfaction; Ethiopia
Outpatient Service Utilization in Pastoralist Communities of South Omo Zone, South Ethiopia. Akeyo Kawai, B.A, M.H.A, Masters of Healthcare and Hospital Administration, SNNP Regional Health Bureau

Background: Almost all pastoralist communities in Sub-Saharan Africa are living in arid and semi-arid areas and are mobile to search water, grass and suitable place for themselves as well as for their livestock. Their mobility is a strategy to manage efficiently the uncertainty in a fragile environment where settled life is risky. Studies show that mobility renders the utilization of health and other social services rather difficult. Outpatient service utilization pattern in pastoralist communities in Ethiopia has not been studied. Available data are very few and mostly institution based.

Objective: To assess the outpatient service utilization in pastoralist communities of southwest Ethiopia.

Methods: We carried out a cross-sectional study on 771 people, from February 1st to February 15, 2012, in three pastoralist woredas of the South Omo zone, which is located in the south western part of Ethiopia. The study employs both quantitative and qualitative data collection methods. The quantitative information was collected by the use of a pre-tested questionnaire by interviewers trained for this purpose. Focus group discussions were carried out for collecting the qualitative data.

Result: Out of the 771 study participants 21.5% were female and 78.5% were male. 86.9% (n= 650) were illiterate and 13.1% (n=101) had elementary education. 94.2% were followers of traditional and cultural beliefs and 5.8% were protestant. The mean age was 37.6 years. A total of 536(69.5%) individuals (414 males and 122 females) reported to have at least one episode of disabling (limiting performance of normal function) illness within the one year recall period. With regard to response to illness episodes, 242 (45.1%) self-treated, 217 (40.5%) went to traditional healers and only 77 (14.4%) used modern health facilities. Having at least a primary education and having a Hamar ethnic background were significant positive predictors of outpatient service utilization.

Conclusion: The findings show very low utilization of services among mobile pastoralists in South Omo Zone, Southwest of Ethiopia. The main factors affecting outpatient utilization was distance and level of household literacy.
Utilization of Institutional Delivery Service and associated factors in Ethiopia, EDHS 2011 Data Analysis. Kassahun Dessie¹, Awwaris Hailu² ¹Department of Health Information Management, DebreBirhan Health Science College, DebreBirhan, Ethiopia ²Department of Health Information Management, DebreBirhan Health Science College, DebreBirhan, 37, Ethiopia

High maternal mortality is a continued challenge for the achievement of the fifth millennium development goal in Sub-Saharan African countries including Ethiopia. Reducing maternal morbidity and mortality is a global priority which is particularly relevant to developing countries like Ethiopia. One of the key strategies for reducing maternal morbidity and mortality is increasing institutional delivery service utilization of mothers under the care of skilled birth attendants. The aim of this study was to determine the level of institutional delivery service utilization and associated factors. The objective of this study was to determine the magnitude and associated factors related to utilization of institutional delivery in Ethiopia. A community based cross sectional secondary data analysis method were conducted by taking all eligible mothers who gave at least one birth in the study period were selected from all clusters of Ethiopian Demographic survey of 2011. Variables were selected, transformed and fitted to bivariate and multivariate Logistic regression model to assess factors associated with institutional delivery using SPSS version 16. P-values ≤ 0.05 were considered as statically significant. In the study a total of 7758 mothers who gave last birth were included. Out of them 16% were delivered in the health institution; of whom 12% were urban and 4% were residing in rural areas. Regarding factors affecting institutional delivery utilization; being rural resident, lower education, long distance to health institutions, male headed household, poor access to media, lower antenatal care follow-up, poor perinatal seeking and family planning knowledge were found to be major factors for less utilization of institutional delivery. The study shows that institutional delivery was quit lower. Hence, stakeholders need to strive on; information, education communication; universal accessibility of health facilities and improving maternal health care services.

Keywords: Ethiopia, Institutional Delivery, Socio-demography, Spatial Distance
External Quality Assessment of AFB Smear Microscopy Performances and its Associated Factors in Selected Private Health Facilities in Addis Ababa, Ethiopia. Lemi Mosissa1, Kassu Desta1, Tedla Mindaye1, Abebaw Kebede1, Mulawork Getahun1, Sisay Tulu4, Addis Ababa University College of Health Sciences School of Allied Health Sciences Department of Clinical Laboratory Sciences 2Addis Ababa City Administration Technical and Vocational Education and Training (TVET) Agency 3Ethiopian Public Health Institute (EPHI) 4Minilik II Referral Hospital

Background: Tuberculosis is still public health problem in sub Saharan African countries. In resource-limited settings, tuberculosis diagnosis relies on sputum smear microscopy, with low & variable sensitivities, especially in paucibacillary pediatric and HIV-associated TB patients. AFB smear microscopy laboratories present several weaknesses like overworking, insufficiently trained personnel, inconsistent reagent supplies, and poorly maintained equipment; thus there is a critical need for investments in laboratory infrastructure, capacity building, and quality assurance.

Objectives: The objective was to assess laboratory performance quality of AFB smear microscopy and its associated factors in selected private health facilities in Addis Ababa.

Material and Methods: A cross-sectional study conducted in 33 selected private health facilities (23 higher clinics, 7 hospitals and 3 health centers that provide AFB smear microscopy services in Addis Ababa from January to April 2014. A total of 283 stained smears were randomly collected for rechecking. 320 slides of panel testing were sent to 32 microscopy centers to evaluate reading, staining and reporting performance of individuals. Checklists were used to assess quality issues of laboratories. Data were captured, cleaned and analyzed using SPSS version 16.0; X² tests and kappa values were used for comparison purpose. P value <0.05 was considered to be statistically significant.

Results: Among the 32 participant laboratories, 2 scored 100%, 15 scored 80-95% & the remaining 15 scored 50-75% of overall proficiency test with 10 (3.15%) major error & 121 (37.8%) minor error. The sensitivity, specificity, PPV and NPV of panel reading by microscopy centers were 89%, 96%, 96%, and 90 % respectively. Out of 283 randomly selected slides, the overall false reading for blinded rechecking was 3.9% with overall agreement of 97.5 % and sensitivity of 88.4 % and specificity of 99.3%. Of 283 rechecked slides, 71.6 % were graded as good evenness, cleanliness, thickness, size, staining and labeling having minimum and maximum score of evenness 161(56.9 %) and labeling 257 (90.8 %) respectively; having significant difference in slide quality of X² (p value <0.05). On-site evaluation indicated problems in terms of infrastructure, standard operating procedure, reagent quality, equipment maintenance, data management and lack of trainings. Most health facilities had poor microscope maintenance (53.5%) and inventory management (25.0 %) system.

Conclusion: Microscopy centers scored a panel test score of 75.5% that is below acceptable minimum score of 80%. In blinded rechecking, 3.9% of overall error was committed. In the onsite checklist, SOP, reagent quality, equipment maintenance and data management were mentioned as a major bottle neck for quality performance.

Recommendation: Continuous assessment of AFB microscopy centers should be considered as part of DOTS program for proper diagnosis and management of tuberculosis. The regional health and research laboratory should implement EQA schemes for all health facilities. Public-private partnership has to be strengthened in the city in particular for proper diagnosis and management of tuberculosis.

Keywords: EQA, panel testing, onsite evaluation, blinded rechecking, major error, minor error
Cancer Pain and its Management: Knowledge of Nurses at Selected Health Institutions, Offering Cancer Treatment in Addis Ababa, Ethiopia, 2013. Getachew Mulu (BSc, MSc): Nursing department, medicine and health science college, Debre Markos University, Debre Markos; Rabel Nega (BSc, MSc), Nursing department, medicine and health science college, Medawelahu University, Bale Goba; Ereda Tachbele: School of Nursing and Midwifery, Addis Ababa University, Ethiopia.

Background: Around a third of patients with cancer report moderate to severe pain and with the development of metastases, the incidence of pain increases to 40% to 60% of patients, and in far advanced disease, 60% to 90% of patients report significant pain. Majority of health professionals found in Ethiopia do not know how to holistically assess and control pain and only insignificant numbers are familiar with the World Health Organization (WHO) pain management protocol. Hence, this study is conducted to assess knowledge of nurses regarding cancer pain management at selected health institutions, offering cancer treatment in Addis Ababa, Ethiopia, 2013.

Methods: Cross-sectional study with supplement of qualitative study design was carried out among 82 nurses in Addis Ababa, Ethiopia. Nurses’ Knowledge and Attitudes Survey Regarding Pain (NKARSP) questionnaire for self-administered and three focus group discussions were used to collect data. Epi info version 3.5.4 and SPSS version 20 statistical software’s were used for data entry and analysis respectively. Means and standard deviations were determined for quantitative data and frequency determined for categorical variables. Nonparametric statistics-Mann-Whitney U and Kruskal Wallis test were used for comparison between multiple means. A P-value less than 0.05 were considered statistically significant.

Results: A deficit in knowledge to cancer pain management was prominent. Only 35.4% of the respondents had good knowledge on cancer pain management. The mean score for correctly answered items was 12.6 (37.1%). A statistical significance was observed in nurse’s work experience with pain knowledge at P<0.05. However, no statistical significance was observed for other socio demographic variables.

Conclusion: Inadequate knowledge regarding cancer pain management was observed. Inadequate education, lack of both pre service and in service trainings were major barriers for acceptable knowledge on cancer pain management. Both theoretical and practical education programs on the provision of cancer pain management should be included for nurses to the existing nursing curriculum.

Keywords: Nurse; Knowledge; Cancer; Pain; Management; Ethiopia
Level of Impacts of Currently Applied HIV and AIDS Intervention Practices and associated factors among Debre Markos University Community. Zewdu Dagnaw (BSc, MPH), Dube Jara (BSc, MPH), Kassahun Ketema(BSc, MSc)Debre Markos University, College of Medicine and Health Science, Department of Public Health.

Introduction: Human immune virus and AIDS impact assessment is used for the way to mobilize responses to HIV and AIDS in the education sector and to refine planning in responses to HIV and AIDS. But the impact of HIV and AIDS due to intervention is not well known in Debre Markos university community.

Objective: to assess level of impact currently applied of HIV and AIDS intervention practices among Debre Markos University community.

Methods and materials: institution based cross-sectional survey was conducted from February 1 to February 20, 2014. Using multi stage random sampling techniques 739 sample size were drawn by stratification methods from category of students, academic staffs and administrative staffs. Using semi structured administer questionnaire and in-depth interview questionnaires for FDG discussants. Data were coded and entered into EPI data and transformed to SPSS 20 version cleaned and analyzed. The data presented with description by tables, diagrams and multiple logistic regressions. Ethical review was assured by ethical review committee of Debre Markos University College of medicine and health sciences before data collection.

Result: From the total of 739 sample sizes that were randomly selected for the study, 678 participants were willing and able to participate with overall response rate of 91.75%. The present study revealed that 245(36.1%) of participants had average and above score of impact information. Age of respondents found to have statistically significant association with impact of currently applied HIV and AIDS intervention practice. Impact of currently applied HIV and AIDS intervention practice was 4.32times more likely high among those respondents belongs to age group 15-19years as compared to those belongs to age group 20-24years with [AOR=4.32; 95% CI (1.73, 10.77)].

Conclusion: the level of impact of currently applied HIV and AIDS intervention practices was low. Impact focused HIV and AIDS intervention practices employing effective behavior change communication strategies are mandatory to bring further impact due intervention.

Key words: Impact, HIV and AIDS, Intervention, Community
Client Satisfaction with Delivery Care Service and Associated Factors in the Public Health Facilities of Gamo Gofa Zone, South West Ethiopia. 

**Rabe'lu Tesfay**, MPH, Arba Minch College of Health Sciences Department.

**Background:** Ensuring patient satisfaction is an important means of secondary prevention of maternal mortality. Satisfied women may be more likely to follow health providers' recommendations. And, studying patient satisfaction can help to improve services, and reduce costs. However, so far there few reports on client satisfaction on delivery care from developing countries. This study presents findings from a multi-dimensional study of client satisfaction from the Gamo Gofa Zone in South-West Ethiopia.

**Objective:** The aim of this study was to assess how satisfied clients using delivery services at public health facilities are Gamo Gofa zone in South-West Ethiopia.

**Methods:** Using exit interviews and we did a facility based cross sectional study in December 2013 and January 2014. We measured client satisfaction using a survey adopted from the Donabedian quality assessment framework. We randomly sampled 13 of 66 institutions in Gamo Gofa. The number of delivering mothers in each health institution was based on proportional to size allocation. We used logistic regression to determine predictors of client satisfaction.

**Results:** Most of mothers (79%; 95% CI; 75-82%) were satisfied with delivery care. Women attending hospitals were less satisfied (58%) than women attending health centres (94%) and the proportion of women who complained about an unfriendly attitude from health workers was higher in the hospitals. The presence of Support persons during child birth improved satisfaction (AOR=8.19 95% CI; 3.49-18.8), as were women who delivered with caesarean section (AOR 2.99; 95% CI; 1.17 -7.66). However, client satisfaction was reduced if the women had to pay for the services (AOR=0.13 95%CI; 0.06 -0.29).

**Conclusions:** The study shows that that overall satisfaction level good, but there is room for improvements. More emphasis should be to have women friendly care, especially at the hospitals.
Patient Expectation: A Concept Analysis. Adugnaw Berhanet, MPH and Getnet Mitiike, PhD. Lecturer, College of Health Sciences, Debre Berhan University, Ethiopia. Professor, School of Public Health, Addis Ababa University, Ethiopia.

Purpose: The aim of this concept analysis is to clarify the concept of patient expectation in hospital health care setting.

Method: Rodgers evolutionary method of concept analysis was used to the analysis of the concept patient expectation. For inclusion criteria, searches were set to any article produced, in English, since January 2009 to December 2013 in Pubmed/MEDLINE, Google and Google Scholar. A final total of 10 articles were included in the theoretical analysis for attributes, antecedents and consequences of the concept. Additional articles that are relevant for concept clarifications were also consulted.

Conclusion and implication: Understanding the attributes, antecedents and consequences of the concept patient expectation has implications for health care in general and health care service providers in particular. Understanding patient expectation has also clarified the vagueness of concept so that stakeholders in health can intervene so as to fulfill patient’s expectations. The term patient expectation is suggested to denote “What an individual have on his/her mind when awaiting or under medical care and treatment”. The possible defining criterion of this concept includes the following specifications: Cognitive process & representation, Value based service, Standard of care & fairness, Realistic and emphasis on specific processes and outcomes.

Keywords: Expectation, Concept analysis, patient, Ethiopia
Adult Mortality Predictive Modeling. Tesfahun Hailemarim

**Background:** The fast-growing, tremendous amount of data, collected and stored in large and massive data repositories, has far exceeded human ability for comprehension without powerful tools. As a result, data collected in large data repositories become seldom visited. This in turn, calls the application of data mining technology. Every year, more than 7.7 million children die before their fifth birthday. However, over three times those of nearly 24 million adults die every year. Less attention has been given to adults which are the most productive phase of life for both economic and social ramifications of families and countries.

**Objective:** The general objective of this research is to construct adult mortality predictive model using data mining techniques so as to identify and improve adult health status using BRHP open cohort database.

**Methods:** The hybrid model that was developed for academic research was followed. Dataset is preprocessed for missing values, outliers and data transformation. Decision tree and Naïve Bayes algorithms were employed to build the predictive model by using a sample dataset of 62,869 records of both alive and died adults through three experiments and six scenarios.

**Result:** In this study as compared to Bayes, the performance of J48 pruned decision tree reveals that 97.2% of accurate results are possible for developing classification rules that can be used for prediction. If no education in family and the person is living in rural highland and lowland, the probability of experiencing adult death is 98.4% and 97.4% respectively with concomitant attributes in the rule generated. The likely chance of adult to survive in completed primary school, completed secondary school, and further education is (98.9%, 99%, 100%) respectively.

**Conclusion:** The study suggests that education plays a considerable role as a root cause of adult death, followed by outmigration. Further comprehensive and extensive experimentation is needed to substantially describe the loss experiences of adult mortality in Ethiopia.

**Keywords:** BRHP data, Mortality, Adult, predictive model, J48 decision tree, Data Mining.
Completion of the modified World Health Organization (WHO) partograph during labour in public health institutions of Addis Ababa, Ethiopia. Engida Yismal*, Berhanu Dessalegne, Ayalew Asratkie and Nebred Fesseha. 'School of Allied Health Sciences, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia.

Background: The World Health Organization (WHO) recommends using the partograph to follow labour and delivery, with the objective to improve health care and reduce maternal and foetal morbidity and death. The partograph consists of a graphic representation of labour and is an excellent visual resource to analyze cervix, uterine contraction and foetal presentation in relation to time. However, poor utilization of the partograph was found in the public health institutions which reflect poor monitoring of mothers in labour and/or poor pregnancy outcome.

Objective: To assess completion of the modified WHO partographs for mothers in labour in public health institutions of Addis Ababa, Ethiopia from December 2011—February 2012.

Methods: A retrospective document review was undertaken to assess the completion of the modified WHO partograph during labour in public health institutions of Addis Ababa, Ethiopia. A total of 420 of the modified WHO partographs used to monitor mothers in labour from five public health institutions that provide maternity care were reviewed. A multi-stage sampling technique was employed to select the partographs required for this study. A structured checklist was used to gather the required data. The collected data were analyzed using SPSS version 16.0. Frequency distributions, cross-tabulations and a graph were used to describe the results of the study.

Results: All facilities were using the modified WHO partograph. The correct completion of the partograph was very low. From 420 partographs reviewed across all the five health facilities, foetal heart rate was recorded into the recommended standard in 129 (30.7%) of the partographs, while 138 (32.9%) of cervical dilatation and 87 (20.70%) of uterine contractions were recorded to the recommended standard. The study did not document descent of the presenting part in 353 (84%). Moulding in 364 (86.7%) of the partographs reviewed was not recorded. Documentation of state of the liquor was 113 (26.9%), while the maternal blood pressure was recorded to standard only in 78 (18.6%) of the partographs reviewed.

Conclusions: This study showed a poor completion of the modified WHO partographs during labour in public health institutions of Addis Ababa, Ethiopia. The findings may reflect poor management of labour and indicate the need for pre-service and periodic on-job training of
Knowledge and Utilizations of Partograph in Public Health Institutions of Addis Ababa, Ethiopia. Engida Yismaha, Berhanu Dessafer, Ayalew Astatkie and Nebred Fessehaie

School of Allied Health Sciences, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia

Background: Globally, there was an estimated number of 287,000 maternal deaths in 2010. Eighty five percent (245,000) of these deaths occurred in sub-Saharan Africa and Southern Asia. Among the causes of these deaths were obstructed and prolonged labour which could be prevented by cost effective and affordable health interventions like the use of the partograph. The use of the partograph is a well-known best practice for quality monitoring of labour and subsequent prevention of obstructed and prolonged labour. However, a number of cases of obstructed labour do happen in health facilities due to poor quality of intrapartum care.

Objective: To assess knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, Ethiopia.

Methods: A cross-sectional quantitative study assessed knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, Ethiopia using a structured interviewer administered questionnaire. The collected data was analyzed using SPSS version 16.0. Logistic regression analysis was used to identify factors associated with knowledge and use of partograph among obstetric care givers.

Results: Knowledge about the partograph was fair: 189 (96.6%) of all the respondents correctly mentioned at least one component of the partograph, 104 (53.3%) correctly explained the function of alert line and 161 (82.6%) correctly explained the function of action line. The study showed that 112 (57.3%) of the obstetric care givers at public health institutions reportedly utilized partograph to monitor mothers in labour. The utilization of the partograph was significantly higher among obstetric care givers working in health centres (67.9%) compared to those working in hospitals (34.4%) [Adjusted OR = 3.63(95%CI: 1.81, 7.28)].

Conclusions: A significant percentage of obstetric care givers had fair knowledge of the partograph and why it is necessary to use it in the management of labour and over half of obstetric care givers reported use of the partograph to monitor mothers in labour. Pre-service and on-job training of obstetric care givers on the use of the partograph should be given emphasis. Mandatory health facility policy is also recommended to ensure safety of women in labour in public health facilities in Addis Ababa, Ethiopia.

Keywords: Partograph, Knowledge, Utilization, Obstetric care givers, Public health institutions
Adequacy of Asthma Management among Patients Attending Chest Clinic of Tikur Anbesa Specialized Hospital: A Prospective Clinical Audit. Chalabew Tesbaha, M.Sc, Ephrem Engidawork, PhD; Tola Bejista (MD, Pulmonologist), College of Health Science, Addis Ababa University.

Introduction: Patient with adequately controlled asthma had less risk of asthmatic attacks and increased quality of life. This study was aimed to assess how adequate asthma managements were to achieve the recommended levels of asthma control and prevent asthmatic attacks.

Methods: a descriptive prospective cross sectional study involving interview and case note review was conducted among patients attending chest clinic of Tikur Anbesa Specialized Hospital for their asthma routine visits. Asthma control test (ACT) was used to assess the levels of asthma control and patient’s treatment pattern was compared with international asthma guidelines. A total of 138 patients were included in the study. Chi square test and binary logistic regressions were employed to examine the association between variables.

Results: More than half of asthmatic patients (59%) had uncontrolled asthma. Co-morbidity status, type of anti-asthmatic regimen and duration of controller use were significantly associated with the levels of asthma control. Significant number of patients (56.5%) had history of asthma attacks during the past 12 months. Considerable numbers of patients (35.6%) were having history of hospitalization due to asthma attacks/exacerbations. Inhalational corticosteroids use and levels of asthma control were found to be the strong predictors of asthmatic attacks. Only a small proportion of asthma patients (28.3%) were managed in accordance with international asthma guidelines.

Conclusion: Poor asthma control, high risk of asthma attacks and under-utilization of Inhalational Corticosteroid is found to be a problem in the settings.

Keywords: Uncontrolled asthma, Asthmatics attacks, Predictors
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Introduction: Health worker motivation reflects the interactions between workers and their work environment. Health workers motivation can have negative and positive potential effect on the provision of health services and client satisfaction. However, assessing workers motivation and factors associated especially for health professionals has important attribute to make the work environment attractive and to increase service quality as well as client satisfaction.

Objective: To assess the magnitude of motivation and associated factors among health workers in federal hospitals of Addis Ababa- Ethiopia

Method: An institution based cross-sectional study was carried out, from April 1 to April 30, 2014 in Addis Ababa federal hospitals among health professionals. Pretested and structured questionnaire via self administered techniques was used to collect the data. The total sample size was 422 by applying single population proportion formula. Descriptive and summary statistics was carried out. Odds ratio with 95% confidence interval was estimated

Result: About 393 health professionals were participating in this study with a response rate of 93%. Majorities (57.5%) of the respondents were males and the mean age of the participants was 31 with (SD) 6.5. The overall motivational status of the respondent was 50.9% 95%CI (50.85, 50.95). In this study basic net monthly salary & remunerations were insignificant predictors of health workers motivation. Those health workers who had service year 1-5 year is 82.5% times more likely motivated as compared to service year >10 (AOR: 0.175 95%CI (0.057, 0.536).

Conclusion: The result of this study showed that, the magnitude of motivation of health workers found to be moderate. Across sectors and health workers’ overall level of motivation with absolute level of compensation was not significantly associated with their motivation status. The strongest drivers of all motivation dimensions are non financial and therefore, policy makers, health work force stake holders specially the hospital management should focus on Human Resource Management tools to alleviate motivation problems.

Keywords: - Motivation, Federal Hospitals, Health workers
Maternal Health Care Service Utilization among Currently Married Women of Reproductive Age in Hossana Town, Southwest Ethiopia. Zedeke Dntamo, Nega Asfaha, Gudina Egeta. 1College of Medicine and Health Sciences, Seme University, Ethiopia 2College of Health and Medical Sciences, Haramaya University, Ethiopia

Background: Provision of skilled care for all women before, during, and after childbirth is a key approach for saving women’s lives and ensuring the best chance of delivering a healthy infant.

Methods: We conducted community based cross-sectional study with qualitative inquiry from January 1-31, 2014. We collected data from a sample of 623 women in the town using structured questionnaire and FGD was carried out among 32 participants in four groups. Descriptive, bivariate and multivariate logistic regression analyses were conducted. Odds ratio with 95% CI was estimated to identify predictors of maternal health care utilization. Statistical level of significance was declared at p < 0.05.

Results: The study revealed that 87.6%, 62.6% and 51.4% of women had chance to be attended at least once during pregnancy, delivery and within 42 days of delivery respectively. Among 546 women who attended ANC, 61.3% of the women made their first visit during second and third trimester of pregnancy and 49% had less than four antenatal visits. Parity, pregnancy intention and awareness on danger signs of pregnancy during pregnancy were significantly associated (p<0.05) antenatal care utilization. There was a significant association between delivery care utilization with women's educational level, husband educational status, pregnancy intention and awareness on danger signs of pregnancy. Average family monthly income, awareness on obstetric danger signs of pregnancy during recent pregnancy and frequency of were positive predictors of PNC utilization.

Conclusions and Recommendation: The utilization of maternal health care services is relatively higher in the study area but inadequate in general. Socio demographic, socio-economic and obstetric factors influence it. Improving the status of women by expanding educational opportunities, strengthening promotion of maternal health care about the importance and benefits, strengthening of community awareness program with the focus on obstetric danger signs of pregnancy, family planning and child spacing were recommended to increase the level of maternal health care utilization.

Keywords: maternal health care, antenatal care, delivery care, postnatal, unintended pregnancy.
Medication Administration Errors and Associated Factors in Dilla University Referral and Yirgalem Zonal Hospitals, Southern Ethiopia, May 2012. Wudma Alemu Kassa, (RN, BSc, MSN), Lecturer at Addis Ababa Science and Technology University in School of Medicine and Health Science, Nursing Department; Tefera Belachew (MD, MSc; DLSTMH, Professor) Professor at Jimma University Post Graduate School; Ibrahim Yimsam (RN, BSc. MSN), Lecturer at Jimma University School of Nursing

Background: Errors in medication administration is one of the major health problems of human being. Different literatures have reported that medication error is one of the ten leading causes of morbidity and mortality, and error in medication administration is the commonest of it. Patients around the world are being injured or died as a result of errors during medication administration each year.

Objective: This study was conducted to assess the prevalence of medication administration errors and contributing factors for errors in medication administration.

Methods: A cross sectional study design was used to assess the prevalence of medication administration errors and associated factors from Mar 1-29/2011 by using both quantitative and qualitative data collection methods. All 141 nurses of both hospitals were involved. Also employed was a continuous 48 hours observation of nurses while administering medications. The data was collected using structured self-administered questionnaire and an observation checklist. Then it was analyzed descriptively and analytically using SPSS window version 16.0. And corresponding P. value of less than or equal to 0.05 was taken as statistically significant at 95% of CI.

Results: - Of the 130 respondents, 71.5% reported committing medication administration errors at least ones in the last 12 months. From the 139 doses observed, only one dose (0.7%) was administered without breaking the rights of medication administration. Majority (87.7%) of the respondents perceived that medication administration errors could be averted by following the rights of medication administration. Lack of sufficient training was the most frequently (68.5%) mentioned factors for errors in medication administration. The likely hood of making MAEs was about 5 times higher if nurses were interrupted while administering medication compared to administration of medication without interruption (AOR= 5.12, CI= 1.679, 15.966). More than 74% of errors remained unreported primarily because of unavailability of a system for reporting and fear of the consequence of reporting. If there had been a system for reporting MAEs, the likelihood of reporting MAEs would have increased by approximately five folds (AOR 4.945, CI=1.809, 13.515). Similarly if there had been no fear of reporting MAEs the likelihood of reporting MAEs would have increased by more than four folds (AOR 4.445, CI= 1.618, 12.211)

Conclusion: medication administration error was highly prevalent in both hospitals. Documentation and time of medication administration were the most commonly broken rules of medication administration. According to the respondents, inadequate training was the commonest cause of errors in medication administration. Most of the errors remain unreported. Unavailability of a system for reporting errors in medication administration was the major cause for low level of reporting errors in medication administration.

Recommendations: The hospitals should facilitate in-service training to nurses mainly on safe medication administration. The administrative bodies of both hospitals should encourage nurses to report medication administration errors by establishing a system for reporting errors in medication administration. Nurses of both hospitals should ensure the safety of their patients by making medication administration safe by strictly following the six rights of medication administration.
Assessment of Documentation Status of Modified World Health Organization Partograph in Public Health Institutions of Bale Zone, Ethiopia. Desalegn Markos, MS; Madawalabu University, College of Medicine and Health sciences, Department of Nursing; Daniel Bogale, MPH, Madawalabu University, College of Medicine and Health sciences, Department of Public Health.

Background: Partograph is basically a graphic representation of the events of labour plotted against time in hours. It is designed for early detection of abnormal progress of labour and prevention of prolonged labour in order to reduce risk of Postpartum Haemorrhage (PPH), sepsis, obstructed labour and its sequel such as ruptured uterus, and obstetric fistula. Therefore, the aim of this study was to assess documentation status of partograph in public health institutions of Bale zone, Ethiopia.

Methodology: Institution based, retrospective, descriptive cross sectional study was conducted to revise partograph document in public health institution of Bale zone, from May 1st to June 30, 2014. A total of 508 sampled modified world Health Organization (WHO) partograph that had been used to monitor labour three month prior to actual data collection period (from February to April 2014) were considered as study population. The data were analyzed using statistical package for social science version 16.0 and descriptive statistics were computed.

Result: Out of the total 508 delivery card revised, 342 (67.3%) clients’ cards have partograph paper. Of which, 103 (20.3%) were not totally recorded and 239 (69.9%) partograph were recorded only in some manner. From partograph paper recorded in some manner, only 107 (44.8%) fetal heart rate, 3 (1.3%) moulding of fetal head, 76 (31.8%) cervical dilatation, and 17 (7.1%) descent of presenting part, 57 (23.8%) uterine contraction, 23 (9.6%) blood pressure, and 14 (5.9%) temperature was documented to the standard level.

Conclusion: There is poor documentation of the modified WHO partographs during labour in public health institutions of Bale zone, Ethiopia.

Key words: Partograph, documentation, Bale zone, Ethiopia
Poor Symptomatic Tuberculosis Screening Practice in Quarter of Health Centers in Amhara Region, Ethiopia. Gebremedhin Berhe Gebregerg1, 2, Mulasew Alemneh3, Digisu Negesse4, Yewulaw Kassie5, Melkiz Assfet6, Worknesh Ayalew7, Chanie Temesgen8, Ereline Klinkenberg9, 10, Takele Tadesse4 1Amhara National Regional State Health Bureau, Bahir Dar, Ethiopia; 2Bahir Dar University, College of Medicine and Health Sciences, Bahir Dar, Ethiopia; 3Bahir Dar Regional Health Research Laboratory Center, Bahir Dar, Ethiopia; 4Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia; 5MSH/HealTB, Addis Ababa, Ethiopia; 6Private Health Sector Program (PHSP), Alt Associates Inc, Addis Ababa, Ethiopia; 7Felege Hiwot Referral Hospital, Bahir Dar, Ethiopia; 8I-TECH, Addis Ababa, Ethiopia; KNCV Tuberculosis Foundation, The Hague, The Netherlands; 10Department of Global Health, Academic Medical Center, University of Amsterdam, Amsterdam Institute for Global Health and Development, The Netherlands

Introduction: In 2011, Ethiopia introduced a strategy of symptomatic tuberculosis screening for patients attending outpatient services to increase identification of presumptive tuberculosis.

Objective: To assess implementation and factors affecting symptomatic tuberculosis screening at outpatient departments in health centers in Amhara region, Ethiopia.

Method: Across-sectional study was conducted in Amhara from September 30 to October 18, 2013. Eighty six randomly selected public health centers providing directly observed treatment short-course services were included in the study. Data were captured through review of registers and interviewing key informants at outpatient services. Ethical clearance was obtained from Ethical Review Committee of Amhara Regional Health Bureau. Data were entered using EPI INFO version 3.5.1. Stata version 11.0 was employed for descriptive and logistics regression analysis.

Results: Twenty eight percent of health centers (24/86) had poor symptomatic tuberculosis screening practice defined as screening less than 80% of attending outpatients. Having an actively functioning health center multi-disciplinary team discussing tuberculosis services [AOR: 2.29, 95%CI: (2.23, 30.80)], and partner support for tuberculosis activities [AOR: 4.84, 95CI: (1.05, 22.40)] were associated with higher TB screening whereas availability of anti-retroviral therapy was negatively associated. In all health centers combined, 1.6% of outpatient department attendants were identified with presumptive tuberculosis.

Conclusion: One fourth of health centers had poor symptomatic tuberculosis screening practice at outpatient services in this study. Strengthening multi-disciplinary teams and expanding partner support are recommended to improve tuberculosis screening practice at outpatient services in Ethiopia.

Keywords: case finding, implementation, outpatients
Assessment of Institutional Delivery Service Utilization and Associated Factors in Kobo Town Administration North East Ethiopia. Tilahun G/Hinot (RN, BSc, MPH), Advisor: Mr. Worku Awokew BSc., Assist. professor of Epidemiology

Background: Globally 287,000 Mothers die from complications of pregnancy and childbirth. Sub-Saharan Africa and Southern Asia accounted for 85% of the global burden of maternal deaths. The rate of maternal mortality in Ethiopia is one of the highest in the world and estimated 676 maternal deaths per 100,000 live births. Most maternal deaths are avoidable.

Objective: To assess the institutional delivery service utilization and associated factors in Kobo Town, North Wollo administrative zone, Amhara National Regional State North East Ethiopia.

Method: Community based cross sectional study was conducted by using quantitative and qualitative method of data collection from May to August 2013 By using stratified sampling technique. In the selected three kebeles house-to-house visit (census) carried out to identify women who gave birth in the past one year prior to the survey.

A total of 475 study subjects selected randomly by systematic random sampling. A structured questionnaire was developed and the data was collected by 10 data collectors who completed grade 10. A univariate, bivariate and multivariate analyses was used by binary logistic regressions. Hence, P-value less than 0.05 or 95% CI taken as significant association; In-depth interviews and FGD used to supplement the quantitative data. Complete, accurate and acceptable data entered into a computer for cleaning and analysis Statistical package SPSS version 16.0 used for statistical analysis EPI-INFO version 5.31 was initially used for double data entry.

Ethical Clearance was gained from the institutional Review board of Bahirdar University. Written consent was also obtained from Amhara National Regional state health Beaure, the district administration and the kebeles administration.

Results: The study depict that 68.9% of mothers gave birth to their last babies in health facility. The multivariate analysis depicted that women’s educational status, age at first pregnancy and husband’s preference about Place of delivery were significantly associated with the utilizations of institutional delivery service.

Conclusion and Recommendations: There is low utilization of institutional delivery service in Kobo town. The proportion of institutional delivery service utilization of the rural residence was lower than the urban counterpart. Therefore, it is recommended that motivating women for formal education and awareness creation should be strengthened for mothers, especially for those who live in rural kebeles.

Background: As part of its health services strengthening component, The Ethiopian Network for HIV/AIDS Treatment, Care and Support (ENHAT-CS) Program had been mandated to provide support to The Amhara Region Health Bureau to initiate woreda based Leadership and Management Development Project (LDP). The program was funded by PEPFAR through USAID and it was jointly led by Amhara Region Health Bureau and ENHAT-CS program. The main objective of the LDP component of ENHAT-CS was to assist the intervention Woreda Health Office (WTHO) teams to learn team innovative oriented Management and Leadership practices, and apply what they learn to face health challenges and achieve results in their workplace.

Intervention: The organization of ENHAT-CS LDP in West Gojam was activated through successive discussions involving senior officials of Amhara Region Health Bureau, West Gojam Zone Health Department (WGZHD) and heads of all 15 intervention Woreda Health Offices (WTHO) in order to ensure that they understand the program and they are committed to its successful implementation. Then, a core team with three members from each WTHO went through three short successive Leadership and Management workshops that were held within five to six weeks intervals. As participants moved from one workshop to the next they applied what they have learned in the workshops to actual work place and mobilized the entire woreda health team staff to achieve their desired results. In between the three workshops, WTHO teams received encouragement, feedback and technical support in the design and implementation of their woreda based projects through coaching from ENHAT-CS Master Trainer and local facilitators.

Objective: This evaluation was conducted to ascertain the validity of the underlying assumption that teaching the fundamental leading and managing practices to woreda health office teams and supporting them in the design and implementation of specific projects to address their challenges would lead to improved leadership practice and increased health service deliveries.

Method: The evaluation was conducted in between mid April and end of May 2014 involving all of the 15 intervention WTHOs. Data were collected by conducting in-depth-interview (IDI) with all of the 15 intervention WTHO heads/vice heads and other WTHOs staffs, review of WTHO team meetings, review of workshop reports, review of teams’ action plan and analysis of reported service statistics on the selected woreda specific health challenges.
**Result:** The project started in August 2013 and progressed through end of February 2014. Overall, 47 health care professional including nurses, health officers, midwives, environmental health officers and pharmacy technicians attended the three consecutive LDP workshops.

The evaluation indicated that each WrHO team chose a specific challenge, established a measurable desired goal, and gathered a baseline data with the use of the Leadership and Management tools and methods they learned during the three LDP workshops. Review of the 15 WrHOS action plans showed that every team understood how to set measurable outputs and define a timeframe for implementation. The action plans also indicated that the challenges selected by the fifteen-woreda health office teams were critically identified to contribute to the MDGs and national health priorities. Of all the fifteen WrHO teams, eight teams (53.3%) choose to report on institutional deliveries and two teams choose to report on < 1 immunization coverage. The rest five teams choose to report on five different challenges: pregnant women attending four or more ANC visit, open defecation free kebeles, household latrine coverage, households implementing full package of the urban health extension program and timeliness of activity reports. Comparison of reported service statistics of all the 15 intervention woredas revealed that all of them have improved their performance when compared to their previous year baselines. The eight WrHOS working on institutional delivery reported improvement which range from 43.2% to 95.1 % increase when compared with their previous year same period performances. The two woreda teams reporting on < 1 immunization improved the percentage of fully immunized <1 children by 7% and 28% when compared to their previous year same period baseline. The other five woredas reporting on five different challenges namely pregnant women attending four or more ANC visit, community sanitation/attain open defecation free status, household latrine coverage, households implementing full package of the urban health extension program and timeliness of activity reports reported a 107%, 53%, 250%, 24% and 50% increase respectively when compared to their previous year baseline.

**Qualitative results:** In-depth-interviews and review meetings participants said that a great passion is growing among WrHO teams for learning and applying leading and managing practices to improve health service delivery. Majority of IDI and review meeting participants said that the leadership development program created senses of team spirit, willingness to solve problems, commitment and accountability for performance. On the other hand, IDI participants have expressed their observation that the methodology did not have impact on some critical issues that are beyond the WrHOS’ span of control such as retaining motivated staffs, obtaining essential medicines and supplies and improving infrastructures.

**Conclusion:** The evaluation shows that the methodology enabled WrHOS to achieve remarkable results and laid the groundwork for sustainable impacts signifying that the program’s component is on track to provide evidence of the methodology’s efficacy for improving woreda health offices’ performance. To ensure sustainability of the methodology and scaling up the program, the Region Health Bureau as a major policy maker needs to take the ownership and support WrHOS to address challenges that are beyond their span of control.
Knowledge and Practice of Health Workers, Health Extension Workers (Hews), Community Volunteer Surveillance Focal Persons (CVSFPS) towards AFP Case Detection and Reporting in Pastoralist and Semi Pastoralist Areas of Ethiopia. Muluksen Asres, (BSc, MPH); Filimonu Birrat, MD/MPH; Yetnagay Kebede, MBA; Misanuaw Fentahun, MD/MPH/PhD

Background: Ethiopia initiated surveillance in 1997 and AFP forms part of the Integrated Disease Surveillance and Response (IDSR) which was adopted in 1998. However, the country remains at high risk because of a number of reasons.

Objective: to assess AFP surveillance status and enhance better AFP case detection in CGPP implementation semi-pastoralist and pastoralist woredas (districts).

Methods: The study used cross sectional qualitative methods involving key informant interviews with Health Extension Workers (HEWs and Community Volunteer Surveillance Focal Persons (CVSFPs) selected using criteria that included representativeness and feasibility.

Results: A total of 70 HEWs were interviewed in the nine study districts (woredas). Forty one (58.6%) was females and 29 (41.4%) were male. Asked about AFP case definition 12 (17.1%) answered points related to acute and flaccid paralysis, and 49(70%) mentioned flaccid paralysis only. A total of 71 CVSFPs were interviewed from the nine study districts (woredas). Thirty five (49.3%) were female and while 36 (50.7%) were male. The case definition of AFP included paralysis from 20(28.2%) respondents and acute paralysis from 7 (9.9%).

Recommendations: strengthening of awareness of women, families and communities through targeted IEC interventions on causes, transmission, prevention of polio identification of AFP cases and care seeking; training and strengthening of supportive supervision HEWs community volunteers and health workers; establishing or strengthening of forums to involve stakeholders, religious and community elders and their institutions; involving kebele or other formal leaders to take responsibility on AFP identification, and subsequent actions.
Magnitude and Associated Factors of Medication Administration Error among Nurse’s at Felege Hiwot Referral Hospital Inpatient Department, Bahir Dar, Northwest Ethiopia. Senafikish Amsalu Feleke§, Mulunadam Abebe Mulatu² and Yeshaneh Seyoum Yesma²

Department of Reproductive Health, Institute of Public Health, University of Gondar, Gondar, Ethiopia ² Internal Medicine department, Felege Hiwot Referral Hospital, Bahir Dar, Ethiopia ³ Department of Nursing, Bahir Dar University, Bahir Dar, Ethiopia.

Background: Medication administration error is one of the risk areas of nursing practice and occurs when a discrepancy occurs between the drug received by the patient and the drug therapy intended by the prescriber. The significant impact of medication administration errors cause patients in terms of morbidity, mortality, adverse drug event, increased length of Hospital stay and it is costly for the healthcare systems and the clinicians as well. Due to this, assessing magnitude and associated factors of medication administration error among nurses has its own contribution for improving the quality of patient care.

Methods: Prospective observation based cross-sectional study was conducted from March 24 - April 7, 2014 at Felege Hiwot Referral Hospital inpatient department. A total of 82 nurses were interviewed using a pre-tested structured questionnaire and observed while administering 360 medications by using checklist supplemented with review of medication charts. Data were entered in to the EPI INFO version 3.5.3 statistical software and analyzed by using SPSS version 20 software package. Logistic regression was done to identify possible factors associated with medication administration error.

Result: The incidence of medication administration error was 199(56.4%). Majority (87.5%) of the medications have documentation error followed by technique error 263(73.1%) and time error 193(53.6%). Nurses with the age group of 18-25 years [Adjusted Odds Ratio (AOR)=2.9, 95% CI (1.65,6.38)], 26-30 years [AOR=2.3, 95% CI (1.55, 7.26)] and 31-40 years [AOR=2.1, 95% CI (1.07, 4.12)], work experience of less than or equal to 10 years [AOR=1.7, 95% CI (1.33, 4.99)], nurse to patient ratio of 7-10 [AOR=1.6, 95% CI (1.44, 3.19)] and greater than 10 [AOR=1.5, 95% CI (1.38, 3.89)], interruption of the respondent at the time of medication administration [AOR=1.5, 95% CI (1.14, 3.21)], night shift of medication administration 3 [AOR=3.1, 95% CI (1.38, 9.66)] and age of the patients with less than 18 years [AOR=2.3, 95% CI (1.17, 4.62)] were the variables significantly associated with medication administration error.
Conclusion and Recommendation: In general, medication errors at the administration phase were highly prevalent in Felege Hiwot Referal hospital. Documentation error is the most dominant type of error observed during the study. Increasing nurse’s staffing levels, minimizing distraction and interruptions during medication administration by using no interruptions zones and “No-Talk” Signage are recommended to overcome MAEs. Retaining experienced nurses from leaving and train and supervise inexperience nurses with a focus of medication safety and providing convenient sleep hours for nurses are helpful in ensuring that medication errors don’t occur as frequently as observed in this study.

Keywords: Medication errors, Nurses, Bahir Dar
Prevalence and Determinant Factors for Home Delivery Practice after Ante Natal Care Follow up among Mothers Who Gave Birth During the Last Two Years in Gozamin District, Northwest Ethiopia, 2014. Gete Bejenu, MPH., college of Medicine and health science, DebreMarkos University; Yilka Mekonnen, MPH GozamenWoreda Health Office; Mekonnen Ayichilubin, MD, MPH; GAMBY College of Medical Sciences, Babir Dar.

Introduction: Maternal health has emerged as global priority because of a great gap in the status of mothers’ wellbeing between rich and the poor countries. Maternal mortality remains unacceptably high in Ethiopia. Ethiopia is unlikely to make much progress to reduce maternal mortality unless acceleration interventions are designed and implemented immediately.

Objective: To assess prevalence and determinant factors for home delivery practice among mothers who gave birth at home after ante natal care follow up during the last two years in Gozamin District, northwest Ethiopia, 2014.

Methods: A total of 497 respondents were participated in quantitative part. Data entry was done using Epi data 3.1 and analysis was done using statistical package for social sciences version 20. Binary logistic regression was done to see the impact of each factor on the pattern of home delivery. In the qualitative part three focus group discussions in husbands and three focus group discussions in women’s who gave birth within the last two years, and 13 in depth interviews among traditional birth attendants were carried out and thematic content analysis was used.

Result: Three hundred seventy four (75.3%) of the respondents gave birth at home. The prevalence of home delivery after four and more antenatal care follow up was 52.2%, and among those respondents who attended one to three antenatal cares follow up was 80.5%. The reasons for home delivery were; 29.1% cultural and traditional practices, 27.3% convenient environment, 24% more home delivery experience and 13.8% family support. Most of the mothers who delivered at home were assisted by traditional birth attendants who account (68%). Respondents with educational status of unable to read and write were six times more likely to give birth at home compared to respondents with primary education and above and respondents occupation being farmer was also significantly associated with home delivery [AOR = 6.91, 95% CI 1.99, 15.10 and AOR = 9.42 95% CI 3.29, 26.94] respectively.
Conclusions: The prevalence of home delivery after ante natal care follow up in Gozamin district was still very high. Religious and traditional beliefs practiced during child birth influences mothers choice of delivery place. Mothers perspective on the quality of ante natal care affected by waiting time to get health service, lack of privacy, trust and confidence on the services provided, respectful and friendly treatment, competent provider, cultural environment at the health service and over satisfaction of mothers'. The government and other stakeholders should make efforts to strengthen community participation through community based informal education, should make stronger bond with traditional birth attendants and Quality of maternal health care shall consider mothers right, satisfaction and effectiveness for consistent use of the services.

Keywords: Antenatal care, home delivery, practice
Attitudes of Nurses and Physicians towards Nurse-Physician Collaboration in Northwest Ethiopia: A Hospital Based Cross-Sectional Study. Eden Amsalu¹, Lecturer of Pediatric Nursing and Gender Coordinator, College of Medicine and Health Sciences, Bahir Dar University; Birhanu Boru², Firehiwot Getahun³ and Begna Tulu¹

Background: Collaboration between professionals is important in health institutions where most activities are team-performed. Ineffective nurse-physician collaboration affects patient outcome, nurses’ job satisfaction and organizational cost and is challenged by personal, interpersonal and organizational factors. The main objective of this study was to assess attitudes of nurses and physicians towards nurse-physician collaboration and the level of satisfaction with regard to quality of collaboration between them at Referral Hospitals of Northwest Ethiopia, from February 1st to April 30, 2013.

Methods: An institution based cross-sectional study was conducted among 176 nurses and 53 physicians working in Felegehiwot and Gondar University Referral Hospitals. Data were collected using self-administered questionnaires. Attitudes of nurses and physicians were measured using Jefferson scale of attitudes towards nurse-physician Collaboration. Results were summarized using descriptive statistics and difference of means and proportions were evaluated using student t test p <0.05 was considered as significant.

Result: The overall response rate was 90.50%. Nurses demonstrate more favorable attitudes than physicians with mean score of 49.63 and 47.49 and standard error of mean 0.474 and 0.931 respectively with p = 0.043. For the Jefferson Scale Attitudes towards Nurse-Physician Collaboration includes four subscales, which are: 1) shared education and teamwork, 2) Caring vs curing, 3) nurses autonomy and 4) physician dominance. Nurses scored higher on three subscales (1, 2 and 4). However, statistically significant differences were noted with regard to subscales 2 and 4 (p = 0.01, p = 0.004, respectively).

Conclusion: This study identified that neither nurses nor physicians were satisfied with their current collaboration and nurses demonstrated less satisfaction with the current nurse physician collaboration. As compared with physicians nurses had more favorable attitudes towards collaboration specifically toward nurses’ contributions to the psychosocial and educational aspects of patient care, and stronger rejection of a totally dominant physician role.

Keywords: Attitudes, Collaboration, Nurse, Physician, Nurse-physician
Increasing Uptake of Maternal Services with a Structured Maternal Health Package. Karen Ballard, PhD, Hamlin Fistula Ethiopia; Habtamu Ataguf, MSc, Hamlin Fistula Ethiopia; Zelalem Belete, MPH, Hamlin Fistula Ethiopia; Hirut Kinfi, MSc, Hamlin Fistula Ethiopia; Mebkyoun Tadese, BSc, Hamlin Fistula Ethiopia; Mohammed Amin, BSc, Hamlin Fistula Ethiopia.

Background: Ethiopia’s 2015 target for Millennium Development Goal number 5 is to reduce maternal mortality down to 218 per 100,000 live births. Key to this is the presence of a skilled birth attendant during and after labour and therefore considerable effort has gone into increasing institutional delivery rates. The quality of the service being provided is likely to influence women’s desire to choose a health facility birth. The effectiveness of interventions to improve the quality of maternal services has received little attention.

Objectives: To compare the uptake and experiences of maternal services received in health centres with structured maternal health packages and those without packages.

Methods: This is a community-based cross-sectional study in 2 Amhara & 1 Oromia Zone. Eight health centres were provided with a maternal health package and the experiences of women served by these health centres were compared to the experiences of women served by 16 randomly selected health centres without the package. The package includes 2 BSc midwives provided with a mentorship program, access to an ambulance, mobile phone, accommodation, & necessary equipment & drugs. The primary outcome measure was stillbirth rate over the last 12 months. Secondary outcomes measures include institutional delivery rate and satisfaction with the health centre service (validated 20-item scale). A total of 25,000 women of reproductive age were randomly selected and from this sample we recruited 4,200 women who had delivered a baby in the preceding 12 months. Health Extension workers were trained to collect the data, which was validated by repeating the survey at randomly selected households.

Results: Preliminary analysis reveals that women served by health centres with the package had higher institutional delivery rates (49%) compared with women served by health centres without the package (33%) (p<0.001). Similar proportions of women attended for antenatal care (53%) but more women (52%) attended for postnatal care from health centres with the package compared to those without the package (45%; p 0.001). Stillbirth rates were similar (2.3 – 2.4%) in women served by health centres with and without the package. Satisfaction with the health centre services was also similar in women served by centres with and without the package (median score 79 – 81), although there was great variation in satisfaction across the individual health centres.

Conclusions: Provision of a structured maternal health package leads to increased institutional delivery rates and greater attendance for postnatal care but the stillbirth rate is not decreased.
What Factors Influence Rural Women in Ethiopia to Deliver their Babies in a Health Facility? Habetamu Atama, MSc, Hamlin Fistula Ethiopia; Dr Karen Ballard, Hamlin Fistula Ethiopia. Zelalem Belete, MPH, Hamlin Fistula Ethiopia; Hirut Kinfu, MSc, Hamlin Fistula Ethiopia. Mebkyou Tadese, BSc, Hamlin Fistula Ethiopia; Mohammed Amin, BSc, Hamlin Fistula Ethiopia.

Background: Although much effort has gone into encouraging women to deliver their babies in health institutions, the vast majority of Ethiopian women continue to deliver at home. Whilst previous studies have identified some important factors leading to home delivery, little is known about the extent to which these different factors influence the delivery place.

Objectives: To measure the predictive strength of factors that lead to institutional delivery amongst rural women in 2 Amhara zones and 1 Oromia zone of Ethiopia.

Methodology: A community-based cross-sectional study design is used. A random sample of 4200 women who have delivered a baby after 28 weeks gestation, within the past 12 months, participated in the study. Following training, health extension workers used an interviewer-administered structured questionnaire to collect data, which was then validated at randomly selected households. The data were analyzed in SPSS (V20), using a binary logistic regression model to identify predictive factors.

Results: Preliminary analysis revealed the following 5 factors to be significantly predictive of a health facility delivery; 1) husband contributing to the decision about delivery place; 2) prior experience of a health facility delivery; 3) having attended a health facility for antenatal care; 4) living near to the health centre; and 5) being literate. The first 2 factors were particularly strong predictors with women whose husbands contributed to the delivery place decision being over 6 times more likely to deliver in a health institution (OR: 6.5; 95% CI: 4.8 to 8.7), and those who had previously delivered in a health institution being 5 times more likely to deliver in a health institution (OR: 5.0; 95% CI: 3.3 to 7.5). The explanatory variables accounted for 37% of the variance.

Conclusion: Once women experience community-based maternal health facilities, they are likely to continue to do so for future pregnancies. It is important to involve husbands in any health promotion messages about the benefits of institutional delivery as they play a key role in decision-making about the place of birth.
Does Increased Provision of Community-Based Maternal Health Services Result in Improved Maternal and Fetal Outcomes?. Karen Ballard, PhD, Hamlin Fistula Ethiopia; Habtamu Attaf, MSc, Hamlin Fistula Ethiopia; Zedelem Belete, MPH, Hamlin Fistula Ethiopia; Hirut Kinfu, MSc, Hamlin Fistula Ethiopia; Mebkyou Tadele, BSc, Hamlin Fistula Ethiopia; Mohammed Amin, BSc, Hamlin Fistula Ethiopia.

Background: There has been considerable investment in improving access and uptake of the maternal health services. Although the 2011 Ethiopian Demographic Health Survey (EDHS) reported little improvements in institutional delivery rates (10%), the mini EDHS (2014) reported an institutional delivery rate of 15%. It is important to determine whether increased use of maternal services results in better maternal and fetal outcomes.

Objectives: To measure changes in delivery place and the impact that this has on maternal and fetal health.

Methods: This is a community-based cross-sectional study in 2 Amhara Zones and 1 Oromia Zone. A total of 25,000 women of reproductive age (15-49 years) were randomly selected, having first used a cluster sampling technique to select 24 health centre populations. Women were first surveyed to determine demographic details, presence of obstetric fistula and whether they had delivered a baby in the preceding 12 months. 4,200 women who had delivered a baby in the preceding 12 months were then further surveyed to determine delivery choices, fetal outcomes, maternal morbidity, and their use and experiences of the maternal services. Health Extension workers were trained to collect the data, which was validated by repeating the survey at randomly selected households.

Results: Preliminary analysis reveal that 62% of women delivered their last baby at home, 33.1% delivered at the health centre, 2.9% at a health post, 2.1% at a hospital and 0.2% at a private clinic. This compares with 91.9% of the second to last babies being born at home. Previous babies were 12 times more likely (OR 12.7; 95 % CI = 8.3 to 19.5) to have been delivered at home, when compared with the last baby born. The stillbirth rate in the last baby born was 2.4%, which is lower (P<0.001) than the 5.0% stillbirth rate in the second to last baby. Women delivering their last baby at home had a stillbirth rate of 2.8%, whereas those delivering in a health institution had a stillbirth rate of 1.7%. The prevalence of obstetric fistula was 1.03 per 1000 reproductive age women, which is lower than 2.2 per 1000 reported a decade ago.

Conclusions: The results of this large community-based study reveal significant increased uptake of maternal health services and this may well be contributing to the observed improved fetal and maternal outcomes. Women should continue to be encouraged to access the maternal health services and deliver their babies in health institutions.
The Effect of Health Facility Delivery on Neonatal Mortality: Systematic Review and Meta-Analysis. Gurmesa Turya, MPH, Assistant Professor, College of Public Health and Medical Sciences, Jimma University, Ethiopia, Meganaw Fantahun, MD, MPH, PhD, School of Public Health, Addis Ababa University, Alemayehu Worku, PhD, Associate Professor, School of Public Health, Addis Ababa University.

Background: Though promising progress has been made towards achieving the Millennium Development Goal four through substantial reduction in under-five mortality, the decline in neonatal mortality remains stagnant, mainly in the middle and low-income countries. Among the health care system related interventions, increasing access to health facility delivery is thought to reduce this problem significantly. However, the existing evidences show contradicting conclusions about this fact, particularly in areas where enabling environments are constraint.

Objective: This review was conducted to determine the pooled effect of health facility delivery on neonatal mortality.

Methods: The reviewed studies were accessed through electronic web-based search strategy from PUBMED, Cochrane Library and Advanced Google Scholar by using combination key terms. The analysis was done by using STATA-11. I² test statistic was used to assess heterogeneity. Funnel plot, and Egger’s test were used to check for publication bias. Pooled effect size was determined in the form of relative risk in the random-effects model using DerSimonian and Laird’s estimator.

Results: A total of 2,216 studies conducted on the review topic were identified. During screening, 37 studies found to be relevant for data abstraction. From these, 19 studies fulfilled the preset criteria and included in the analysis. In 10 of the 19 studies included in the analysis, facility delivery had significant association with neonatal mortality; while in 9 studies the association was not-significant. Based on the random effects model, the final pooled effect size in the form of relative risk was 0.71 (95% CI: 0.54, 0.87) for health facility delivery as compared to home delivery.

Conclusions: Health facility delivery is found to reduce the risk of neonatal mortality by 29% in low and middle income countries. Expansion of health facilities, fulfilling the enabling environments and promoting their utilization during childbirth are essential in areas where home delivery is a common practice.
Developing Master of Public Health Programs in Human Resources for Health Management and Health Economics in Ethiopia. Teghaw Yigezu (Jhpiego), Susan Fawsett (Open University), Damte Woldemariam (Jhpiego), Shelemo Shewula (MSH), Daniel Defee (Jhpiego), Hannah Gibson (Jhpiego)

Context: Weak human resource management capacity and limited ability to identify, allocate and efficiently use scarce resources to meet increasing health needs of its population are important challenges to the Ethiopian health system. It is known that well-educated public health specialists are critical for an effective health system. It then follows that professionalizing and up-skilling human resource health managers is a prerequisite to strengthen human resource planning, and management capacity effectively and sustainably. Likewise, developing a cadre of health economists is necessary to strengthen capacity for health planning and monitoring, evidence-based decision-making and efficient resource allocation and utilization. However, until 2014 there were no postgraduate education programs in Ethiopia that addressed this need. We describe here how a USAID-funded Strengthening Human Resources for Health Project implemented by a Jhpiego-led partnership supported the Government of Ethiopia to develop high quality and contextually relevant master of public health education programs in human resources for health management and health economics.

What was done: We followed a systematic and local capacity building approach in developing master of public health programs in human resources for health management and health economics. We first organized consensus building meetings with Ministries of Health and Education and four higher education institutions to establish the case and secure commitment. A decision was then made to design quality and flexible postgraduate education programs suitable for and primarily targeting fully employed professionals who are, or will be staffing human resource, planning, and healthcare financing departments in the public health system. Recognizing the cross-cutting nature of the proposed programs and the benefit of expertise from public health and business worlds, it was agreed that the programs would be jointly developed and managed by schools of public health and business. 21 public health and business faculty members from three public and one private higher education institutions were invited to a blended learning course (combination of face to face and distance learning modalities). The course helped not only to equip participants with knowledge and skills to design and manage a blended learning approach but also created a unified vision on the curriculum delivery approach. Core faculty members from the four institutions were then commissioned to conduct needs assessment with the aim of verifying the relevance of the programs and identifying essential competencies. We then invited subject matter experts from academia and practice to a curriculum design workshop and guided them to develop two competency-based modular curricula. The programs had 5 common modules and 4 and 6 specialty modules for human resources for health management and health economics, respectively. The curricula were subsequently approved by the respective University senates. We
also organized a series of module writing workshops with academics and practitioners to produce high-quality and contextually relevant distance learning materials including tutor and student guides. To prepare faculty members to use evidence-based teaching/learning strategies, we gave an effective teaching skills course for 17 instructors. Student handbooks, program monitoring and quality assurance tools were also developed to guide and improve delivery of the programs. We are also providing financial and material assistance.

**Evaluation of results:** Master of Public Health programs in human resource for health management and health economics have been established in local higher education institutions. To date, University of Gondar has successfully screened and enrolled 32 students from Amhara, Tigray and Benishangul regions and students have since completed the face-to-face component of the four common modules. Jimma University has finalized student selection and is planning to start classes in November 2014. We have strengthened institutional capacity for developing and managing blended and competency-based education programs. Beneficiary institutions have also identified important lessons to be adopted for other education programs. In the next three years, the Ministry of Health will be supported to educate 160 of its leaders and managers in human resources for health management and health economics at postgraduate level.
Quality of Tuberculosis Care in Private Health Facilities of Addis Ababa, Ethiopia. Mitiku Teshome, MPH, College of Health and Medical Sciences, Department of Public Health, Haramaya University; Gezahgn Gebrekidan MPH., Policy and Planning Directorate, Federal Ministry of Health (FMOH), Addis Ababa, Ethiopia; Negussie Deyessa PhD, School of Public Health Department of Epidemiology and Biostatistics, Addis Ababa University; Gezahgn Tesfaye MPH., College of Health and Medical Sciences, Department of Public Health, Haramaya University.

Background: Ensuring provision of good quality tuberculosis (TB) care, especially in private for profit health facilities, is an important component of TB control strategy to reduce poor medical practice which results in multidrug resistant TB (MDR-TB).

Objective: The aim of this study was to investigate quality of TB care in private health facilities of Addis Ababa.

Methods: A facility based cross-sectional study was conducted from March 11 to 22, 2011 based on Donabedian’s structure-process-outcome model of health care quality. Quality of care was determined by adherence to National TB Program guidelines, treatment success rate, and client satisfaction. Exit interview was conducted on 292 patients on the intensive phase of treatment and 384 patient records were reviewed in eight private health facilities (Betel Hospital, Megenagna Higher Clinic, Betezata Hospital, Teklehaimanot Higher Clinic, Ethio-tebib hospital, Abinet Higher clinic, Bethsaida Higher clinic, Tesfa Kokeb Higher Clinic).

Results: Initial diagnostic AFB test was done for 95.4% of pulmonary TB patients. Most important components of TB care recommended by national guidelines were delivered for a significant proportion of patients. Majority (75%) of the clients were found to be satisfied with each component of TB care. The treatment success rate was 90.9%.

Conclusions: The quality of TB care was fairly good. However, only 77.7% of the patients were counseled for HIV testing. Strengthening HIV counseling and testing, tackling shortage of streptomycin and laboratory reagent at private TB clinic is crucial.
The Role of Behavioral Change Intervention on PMTCT/ANC Service Uptake: the Experience of Integrated Family Health Program (IFHP) in Ethiopia. Bekele Ababeye, MSc, Addis Ababa

Introduction: Ethiopia ranks among the lowest in the world in terms of PMTCT and ANC services uptake. Recognizing this, significant efforts are being made by the MOH and partners to improve use of PMTCT uptakes. Particularly through investment in PMTCT and ANC service delivery. To increase demand for such services, USAID’s Integrated Family Health Program (IFHP) scaled up community engagement and behavior change interventions across four regions. Since October 2008, IFHP has been implementing an integrated package of family health services in 300 districts of Oromia, Tigray, Amhara, and SNNP and pocket kebeles of Somali and Beshangul-Gumuz regions.

Method: As part of the scale-up effort, training was given to health extension worker and community networks (health development army members and model families) and mobilized them to conduct door to door interpersonal communication with the help of IFHP communication tools. They also conduct small group dialogues using local community structures and IFHP audio-visual mobile vans. IFHP also mounted audio van in all its field vehicles for health messages dissemination in public gathering areas such as market places and communities. Baseline and endline surveys were conducted in 2008 and in 2013 to evaluate the change before and after this intervention. Data was collected from households, health facilities (health centers and health posts) and woreda health offices. Program review was also conducted in 2013. Data included indicators on the number of households with a person who knows all vertical HIV transmission methods, ANC attendance and comprehensive knowledge on methods of HIV prevention.

Results: Suring the scale-up of the interventions over 20,000 health extension worker and 300,000 community networks (health development army members and model families) were trained. Countless mobile van session were conducted to sensitize the community. The endline survey revealed that percentage of households that knew about the three ways of vertical HIV transmission increased from 7.5 % in 2008 to 53% in 2013 and comprehensive knowledge about HIV prevention method also increased in the same way. There is significant increase in PMTCT/ANC uptake from 44 % to 76.7 % between two periods.

The program review and the surveys showed that IFHP’s efforts have contributed to increases in PMTCT service uptake and improvement in communities’ awareness on comprehensive HIV prevention methods. Use of audio-visual mobile vans and audio-mounted vehicles played pivotal roles for the observed change through disseminating key messages.

Conclusion and Recommendation: The program’s combined interpersonal communication, group dialogue, and community engagement health communication capacity building strategies appear to have positively affected community health worker to promote health seeking behavior for PMTCT services, and family health services in general.
A Holistic Approach to Tackle Obstetric Fistula: Experience of the Integrated Family Health Program. Heran Abebe (MSC), Senior Gender Mainstreaming Advisor, Addis Ababa; Tariku Bogale (MPH, CAHM); Kidest Lulu (MD, MPH)

Background: In Ethiopia, it is estimated that there are 36,000-39,000 untreated cases of and elimination is targeted by 2020. The Integrated Family Health Program (IFHP), a collaborative program between Pathfinder International and John Snow Inc. (JSI) and financed by USAID, has been working in Amhara, Oromia, SNNP and Tigray regions of Ethiopia to reduce the burden of OF since 2008.

Program intervention/activity tested: IFHP started implementing a three pronged approach: prevention, treatment and rehabilitation, to reduce the burden in the four regions. As a prevention strategy, IFHP has been mobilizing communities to utilize skilled maternity care (ANC and delivery care) and family planning services, empowers young girls through creating access to SRH information and services, working with religious and community leaders in the cancellation of early marriage and elimination of harmful traditional practices. As part of the treatment prong, the program provides training to health extension workers (HEWs) and community networks to identify and refer OF cases in the community. At the health center, the program trains health workers to make initial screening and diagnosis of the cases and to those with positive diagnosis, the program provides transportation services to fistula repair centers. After successful treatment, as part of rehabilitation, IFHP provides life skill training to selected women, builds the capacity of the most vulnerable OF survivors to generate income, train some of the survivors as fistula ambassadors and link survivors to HEWs for support and follow up. In addition, the program has established a partnership with fistula treatment centers, women’s associations and other relevant stakeholders.

Methodology: Data were collected from performance reports, service statistics and interviews of satisfied clients. The quantitative data are summarized using descriptive statistics and proportions. The qualitative data is presented textually.

Results/key findings: Following training of health workers and HEWs, 1,510 suspected OF cases were identified and referred from the community of which 919 (61%) were successfully repaired and rehabilitated. During their discharge after treatment, most of the women received life skill trainings. A fistula survivor that was successfully repaired and rehabilitated says, “Now after the treatment, I am in a good situation and is leading a happy life with my families; my body is getting very strong; and I will never refrain myself to take part in any social issues unlike before when I was outcast because I was stinking due to continuous leak of urine”
Three thousand religious and community leaders were trained on the prevention of harmful traditional practices and awareness on causes, consequences and prevention of OF. Following the training, 13,631 arranged early marriages were cancelled or differed. In addition, as part of the prevention of OF, a total of 13.3 million women received family planning services, close to 7 million women attended ANC from a skilled provider through the support of IFHP.

**Program implications/lessons:** To eliminate OF by 2020 in accordance with the national strategy, a holistic approach is needed that encompasses prevention, treatment and rehabilitation. The results of IFHP show that the burden of OF can be mitigated through building the capacity of frontline and midlevel health professionals at PHCU and community levels.

Seid Ali (MPH), FP coordinator in IFHP, Bahir Dar; Tarika Bogale (MPH, CAHM); Kidest Lulu (MD, MPH); Yewondwossen Tilahun (MD, Gynec Obst)

Significance/background: In Ethiopia, 29% of married women use contraception. The most popular method is injectable contraception (21%). However, only 0.3% IUCD use. To revitalize the use of IUCD, the MoH of Ethiopia launched a national initiative in 2010. USAID’s IFHP, as a major FP/RH partner to the MOH, conducted the initial learning phase and the scale-up of IUCD trainings. Since December 2011, IFHP implemented the initial learning phase of the IUCD scale-up that included skill training on LAFP-IUCD for health care providers; followed by three months post-training mentoring and follow-up; and program review meetings with the trainees, IFHP staff and the public health managers. Actual IUCD scale-up started after April 2012. It was implemented primarily through a LAFP training program focusing on IUCD skills and knowledge. This training is named “IUCD focused LAFP” training, compared to the previous “comprehensive LAFP training” which provided the skills and knowledge for all available LAFP methods with no particular emphasis to the individual methods.

Program intervention/activity tested: Addressing the LAFP unmet need by increasing access and uptake of IUCD through knowledge and skills-based training of health care providers, post-training equipment and supply support in the public sector facilities.

Methodology: From December 2011 to March 2012, initial learning IUCD scale-up initiative trainings were provided to health care providers selected from health facilities in Oromia, Amhara, SNNPR and Tigray regions where IFHP is active. During the trainings, all FP methods and services were provided. After these trainings, trainees were provided with three sets of IUCD kits and consumables allowing them to initiate the IUCD services in their health facilities immediately. Following the training, three months post-training follow-up and mentoring were conducted at the HCs providing IUCD services. Facility assessment was done using a checklist of the learning phase facilities. Data from the IUCD acceptors and from all other clients were collected. Trend of the IUCD uptake was compared before the IUCD focused trainings. After the three months post-training mentoring and follow-up, program review meetings were conducted to discuss the achievements and challenges of the initial learning phase. The IUCD scale-up was started in March 2013, after lessons learned and challenges from the learning phase were analyzed.

Results/key findings: During the initial learning phase, a total of 238 health care providers from 129 health facilities were trained in counseling skills, IUCD insertion, and removal. The facility assessment revealed that
proper IUCD sets were not available and IUCD services were not regularly provided in these facilities. After the IUCD focused trainings, all the 129 health facilities had 2 health care providers trained on IUCD, and received 3 sets of IUCD kits and consumable to provide the IUCD services.

Out of the 5,044 clients served for all FP methods during the initial learning phase (2,932 during the trainings and 2,112 during the post-training follow-up), 1,296 (25.6%) were provided with IUCD. From the total 1,296 IUCD users, 120 (9.3%) were new accepters and 1176 (90.7%) of them shifted to IUCD from other contraceptive methods.

During the scale-up phase, an additional 804 providers from 639 health facilities were trained. Out of 67,684 clients served for all FP methods, 17,598 clients (26%) (3,392 during trainings and 14,206 (189 removal) after the training) received IUCD services. From a total of 17,409 clients served with IUCD insertions, 1758 (10.1%) were new acceptors and 15,650 (89.9%) clients shifted to IUCD from all other contraceptive methods. Out of the 72,728 clients that received all FP methods during the learning and scale-up period, 18,894 (26%) received IUCD services.

The share of IUCD in the method mix increased from 0.67% to 26% before and after the focused IUCD training.

**Program implications/lessons:** Training of HC staff on focused LAFP-IUCD, providing post-training IUCD kits and supplies and mentoring improve the method mix at PHCU level. These interventions also increase the uptake of LAFP-IUCD in the public health facilities.
Assessment of Clinical Laboratory Service Utilization in the Outpatient Department at Gondar University Hospital, North West Ethiopia. Fikir Asrie (BSc,MSc), Ayenew Aditu1 (BSc,MSc), Mulugeta Melka1 (BSc,MSc) and Bamlaku Emaugaw1 (BSc,MSc) 1College of Medicine and Health Science, University of Gondar, P.O. Box 196, Gondar Ethiopia,

Background: Clinical laboratory service is the back bone of health care settings which gives valuable information for patient care. Distribution of diagnostic clinical laboratories tests are different in type and quantity of tests at different health facilities such as health center, districts hospitals, referral hospitals and specialized hospitals for many of the preventable disease in Ethiopia.

Objective: to assess clinical Laboratory service utilization in the outpatient department at Gondar University Hospital laboratory.

Methods: A one year laboratory service data were collected from a daily registration book prospectively for analysis of outpatient service consumption of Gondar university hospital laboratory.

Result: A total of 59,805 outpatients were visited the laboratory between July 2013 and June 2014. About 57.2% of the outpatients were from outside Gondar Town. In the study period 31.1 % were not charged for the service due to poverty certificate. Children under 15 made up only 8.1% of service consumers. In the study period, a total of 235,853 laboratory tests were requested, 32.6% of which were in urinalysis and parasitology. Majority of the tests (28.7%) were done in the 3rd quarter of the year.

Conclusion: Most of the requested tests could be handled by peripheral laboratories and leave referral hospital laboratories to do quality, supervision and training of peripheral laboratory professional.
Job Satisfaction and Associated Factors among Health Professionals Working in Public Hospitals of West Shoa Zone, Oromia Regional State, Ethiopia.
Mulugeta Mekuria and Ayele Gelete

Background: Health services are affected by many factors such as availability of human resources, health infrastructures and health delivery system. Among these, human resource is a vital component in delivering health services. Health systems cannot function effectively without sufficient numbers of skilled, motivated and supported health workers. Job satisfaction of the health workers is highly important in building up employee motivation; increased productivity and efficiency as higher job satisfaction determine better employee performance and higher level of patients’ satisfaction.

Objective: The main aim of this study is to assess level of job satisfaction and associated factors among health workers at public hospitals in west Shoa zone of Oromia Region.

Methods: Facility based cross-sectional study was conducted among 166 randomly selected health workers from public hospitals of west Shoa. Data were collected by self-administered structured questionnaires. The data were entered into EpiData version 3.1 and analyzed with SPSS version 20 statistical software. Multivariable logistic regression was used to analyze data and odds ratio with 95% CI at P ≤ 0.05 was used to identify associated factors with level of job satisfaction.

Result: A total of 166 health workers responded with response rate of 100.0%. The result showed that majority 108(65.1%) of participated health workers were dissatisfied with their job. The major reasons reported for dissatisfaction were lack of motivation, lack of training and development opportunity, lack allowance (professional, transportation, home), obsolete management style and lack opportunity of promotion. The correlation between the different aspects of job satisfaction was found to be significant. General satisfaction and all the individual dimensions of job satisfaction had a positive medium relationship with each other at a low to medium level. Multivariate logistic regression analysis showed that age of respondents, profession, level of education, future intention, service year and participation in decision making were found to be significantly associated with job satisfaction

Conclusion: In this study majority of the study participants were dissatisfied with their job. Majority of the health workers job dissatisfaction were attributed to hospital management system. Managers and health policy makers should give due consideration on health workers job satisfaction if they really want to achieve their goals and objectives.

Keywords: Satisfaction, public hospital, health professionals, motivation
The Inadequacy of Mental Health Services in Ethiopia: A Human Rights Violation. Ayenew Debbe, a Lecturer at Jimma University, Law School

Mentally ill persons are exposed to a wide range of human rights violations; among others, the right to access to adequate mental health care is one of the rights that are neglected significantly. Several researches have revealed that, compared to the physical health, the human and financial resources dedicated to mental health in many low and middle income countries is significantly inadequate. Ethiopia is not an exception; mental health issues are low on the public health priority agenda.

Accordingly, this article discusses first on cross-cutting issues about the meaning of mental health, the rights of mentally ill persons to access mental health services and the global mental health gap followed with the situation analysis of the Ethiopian mental health care system ranging from the policy and legislative framework to other detailed infrastructure issues. Based on the result of the situation analysis, a discussion will be made how the existing systems and services are short of the international human rights obligations that Ethiopia has undertaken to fulfill.

The article concludes that the Ethiopian government has failed to provide accessible mental health services to the many people in need. Perhaps most importantly, this failure will cause the substantial burden of untreated mental illnesses, thereby importing human rights violations for one of the most vulnerable and marginalized subgroups in the society. Though the government may attempt to defend this complaint for the resource limitation and poverty that the country is living in, it is the position of the author that the barrier to progress in developing mental health services can be overcome if there is sufficient political will and compliance with human rights obligations on mental health similar to physical health.

Keywords: mental health, human rights, Ethiopia

Optimal infant and young child feeding is a critical component for improved child nutrition. Community based nutrition promoters especially peer mothers that have a direct contact with families and care givers needs to be equipped with the right skills to provide timed and targeted counseling on infant and young child feeding practices at community level. World Vision Ethiopia through Alive & Thrive Project has conducted an effectiveness study in SNNPR comparing trained peer mothers promoting infant and young child feeding (IYCF) using timed and targeted counseling approach and a control group where the current status quo is maintained.

Eight woredas, four per group, were selected for an intervention and control groups. A two-stage cluster sampling method was used to identify the sample Kebeles and a total of 40 respondents in 40 Kebeles were selected, 20 in the intervention & 20 in the control groups. A total of 800 children per group (20 women with children 0-5 months & 20 women with children 6-23 months per Kebele) were included in the study. It is a structured and pre-coded questionnaire containing 44 pages. Trained peer mothers provided IYCF counseling at the right time (timed) and to the mother who will do the practice and influencers (targeted) in the intervention area. Household background information, food security and economic status, water supply and sanitation, IYCF knowledge and practice & childhood illness and treatment, antenatal care, vaccination status, types and frequency of foods consumed, iron and vitamin A supplementation status were assessed at baseline and end line. Difference-in-difference (DID) and static group comparison that assesses the exposed versus unexposed to the intervention were used during analysis using EPI-INFO for data entry & STATA 11 for data analysis.

The intervention has a significant net positive effect on women’s knowledge and practice on initiation of breast feeding within an hour, colostrums feeding and exclusive breast feeding (p<0.05) and multivariate logistic regression coefficient (β) analysis adjusted for several factors for interaction term (DID) showed p<0.0001. However, there is no evidence of program impact on meal Frequency, food diversity and acceptable diet and in the prevalence of stunting among children 6-23 months. Significant declining trend in the prevalence of wasting and underweight was observed in the intervention area (p<0.05). Multivariate logistic regression coefficient (β) analysis adjusted for several factors for interaction term (DID) showed
p<0.05. Moreover, net positive gain in child immunization and ANC coverage in the intervention area. The study also showed high exposure to timed and targeted counseling is significantly associated with better outcome. In conclusion when rural mothers are exposed to timed and targeted counseling on IYCF by volunteer peer mothers, it is likely that their knowledge and behaviour regarding IYCF will improve. To achieve the maximum possible impact of the intervention peer mothers should be able to reach out to more women and maintain scheduled visits & program should find ways to improve the staggeringly low dietary diversity for children in the study area. Counseling alone may not be adequate to improve dietary diversity.
Health Facility Delivery Services Utilization and Associated Factors in Five Integrated Family Health Program Project Supported Districts of East Gojam.

Wassie Lingerb (MD, MPH), Yemane Berhane (MD, MPH, PHD)

Introduction: Ethiopia is one of the six countries that contribute to over 50% of global maternal mortality. Most of the deaths (60%) occur at the time of labor and delivery. Skilled delivery services by Skilled Birth Attendants (SBAs) at health facilities significantly reduce the death toll by preventing and treating complications. In Ethiopia, proportion of family planning use increased by more than three times over a decade but proportion of deliveries attended by SBAs remained very low. In order to improve the situation, Integrated Family Health Program (IFHP) supported the public health system in comprehensive Maternal and Newborn Health (MNH) intervention to improve the uptake of deliveries by SBAs. However, factors that affect health facility skilled delivery service use have not been adequately studied in Ethiopian context.

Objective: Assess health facility skilled delivery service use and identify factors associated with in five IFHP supported districts in Amhara Regional State of Ethiopia.

Methodology: A community-based cross-sectional quantitative household survey was conducted in February to March 2012 in five districts of East Gojam zone of Amhara Region. The sample size for the study was calculated using single population proportion formula, taking $p = 10.1\%$, precision of 5%, a 95% confidence level, a design effect of 2 for cluster sampling method and 15% contingency for non-response. Accordingly, the final sample size was 647. The five districts were selected purposively because they are IFHP’s MNH support intervention areas. From the list of 36 Kebeles (sub-districts) in the five districts, twelve Kebeles were selected using cluster sampling method of probability proportionate to size (PPS). In each selected Kebele, household with a mother who gave birth within 12 months prior to the survey were identified and interviewed. Descriptive and analytical statistics were calculated to summarize the data and explore associations. Ethical clearance was obtained from Amhara Regional State Health Bureau.

A total of 647 women were interviewed with 100% response rate. The majorities of respondents were housewives (80%) and two-thirds (64%) of them with no formal education. Most (79.6%) of the respondents had antenatal care (ANC) service at health facility and nearly a third (28%) of them gave birth to their latest child at health facility by SBAs. In this study, ANC service and delivery service use were much higher compared to Ethiopian Demographic and Health Survey (EDHS) 2011.

Better family income, formal education, supportive partner for facility service use, awareness on benefit of SBAs and history of HIV testing were significantly associated with skilled delivery service use ($p<0.005$).
Conclusion and Recommendation: There is high skilled delivery service use in the study area. Empowered women with education and better income utilize health facilities. Partners support improves skilled service use. Health education tailored to male partners should be strengthened. Health facilities need to encourage involvement of male partners during counseling at ANC visit. The quality of counseling during ANC should be improved giving due emphasis on birth preparedness and complication readiness to minimize the gap between ANC service and delivery service utilization.

Background: Cervical cancer (CC) remains a problem of public health dimensions especially in resource-limited settings. A single visit approach to cervical cancer prevention (CCP) using visual inspection of the cervix with acetic acid wash (VIA) and treatment of cervical pre-cancers with cryotherapy is currently found effective strategy to prevent CC. Availability of trained providers on this new technical area is a key aspect of the strategy.

Objectives: Pathfinder’s Addis Tesfa (New Hope) project experience on multidisciplinary competency based training approach aimed at increasing access to and use of cervical cancer prevention (CCP) services among HIV-positive women in Ethiopia will be shared.

Methods: Skill based clinical trainings of health care providers VIA and cryotherapy conducted from July 2010 to May 2013 and supplemented by post training follow-up and support. Provider competency assessed at the middle and end of the trainings using written tests, image tests and clinical skills assessment checklists. SPSS used to analyze trainees’ performance in written and image tests; one sample T-Test at 95% confidence interval used for mean comparison.

Project implemented in collaboration with Federal Ministry of Health funded by Center for Disease control and prevention.

Results: 26 Doctors and 50 mid-level health professionals (nurses and midwives) trained. For doctors, the mean score of the mid-course test and image test was 92% [90, 95] and 86.4% [84, 89] respectively. Mid-level health professional’s mean score on the mid-course test and image test was 80% [76, 85] and 86% [84, 88] respectively.

The equivalent test result on the image test among the two professional categories created the understanding on the competency of mid-level professionals to the new visual test technique and ensures service quality being the visual technique the mainstay to this screening procedure. During and post training clinical skills assessment, all providers provide service to the standard and 18,184 clients received VIA screening at 14 facilities in the five year project period.

Conclusions: Competency-based multidisciplinary training approach with post-training follow up and support on VIA and Cryotherapy facilitates task shifting among health professionals. It is found an essential approach to significantly contribute in increasing service coverage and provide quality CCP service.
Timing of first ANC booking and associated factors among pregnant women in Arbaminch Town and Arbaminch Zuria District, Ethiopia. Fekke Gebremeskel, Yohannes Dihaba, Bitori Admassu. College of Medicine and Health Sciences, Arbaminch University, Ethiopia; College of Public Health and Medical Sciences, Jimma University, Ethiopia

Background: Antenatal Care is used to prevent adverse pregnancy outcomes and maintain new born life, when it is sought early in pregnancy. Women who attend antenatal care late miss the opportunity of early detection of human immune virus, sexually transmitted diseases, malaria, anemia prophylaxis, health education and treatment or prevention of complications. However, existing evidence from developing countries including Ethiopia indicate that few women seek Antenatal care at early stage of their pregnancy.

Objective: To assess timing of first Ante natal care booking and associated factors in Arbaminch town and Arbaminch Zuria District.

Design: Facility based cross-sectional study employing both quantitative and a qualitative method was conducted from February to March, 2014 in Arbaminch Town and Arbaminch Zuria District. Data were collected from 409 pregnant women attending ANC clinics in nine public health facilities using systematic random sampling. Analysis was done using SPSS version 20. Descriptive statistics, Binary and Multiple logistic regression analysis were computed.

Results: The mean (SD±) age of the respondents was 26± 5.5 years. The average gestational age at first Antenatal care booking was 5±1.5 months. Eighty two percent pregnant women were booked late for first ANC visits. Most of the reasons given by 61% and 22% respondents who booked late were due to poor perception of appropriate time and shortage of time respectively. This study indicated that pregnant women with low monthly income (AOR=4.9, CI (1.713, 14.076)), women who received advise on when to start ANC visits not on recommended time (AOR=3, CI (1.476, 6.244)), household food insecurity (AOR=4.66, CI (1.007, 21.589)) and unplanned pregnancy (AOR=4.49, CI (2.162, 9.353) were factors associated with late Antenatal care booking.

Conclusions: The study showed that more than three fourth of the pregnant women booked late for first antenatal care. Hence, providing health education on the timing of antenatal care is very important.

Keywords: Timing, Antenatal care, booking, Arbaminch, District, Ethiopia

The maternal mortality ratio of Ethiopia is among the highest in the world and has remained unchanged since 2000 [EDHS 2000, 2005, 2011]. Likewise, neonatal mortality, which attributes to 42% of the under-five mortalities, has been persistently high with sluggish decline in the past decade. Almost three-quarters of maternal and majority of neonatal deaths in Ethiopia are due to events that happen in and around the time of labor, delivery and early postpartum, and yet are manageable with timely skilled emergency obstetric and newborn care. However, the availability and utilization of these interventions is low. To bridge this gap, the Last Ten Kilometers Project (L10K), JSI Research & Training Institute, Inc., is working with Ministry of Health to expand access to Basic Emergency Obstetric and Newborn Care (BEmONC) in 134 primary health care units (PHCUs) in Amhara, Oromia, SNNP and Tigray regions. A situational analysis was conducted to identify gaps in November 2013 and the following interventions were designed and implemented: 1) capacity building, 2) mentoring and monitoring, 3) provide equipment and supplies, and 4) strengthening referral linkages.

To measure the effectiveness of the project a pretest-posttest design was used. For the follow-up purpose a retrospective twelve months facility statistics was collected from 134 intervention health centers and its referral hospitals during August-September 2014. Information on facility deliveries, delivery outcomes, obstetric complications and performance of BEmONC signal functions were collected. Data from referral hospitals were limited to cases referred from the intervention health centers. Facility registers were reviewed to capture the required data and patient records were used to retrieve missing data. Descriptive and ANOVA statistics were done to assess statistically significant differences in the outcome measures using Stata version 12.1.

The result showed that 29% of health centers performed all seven BEmONC functions in the last 3 months. The percentage of BEmONC functions being performed on average increased from 55% during September-November 2013 to 72% during July-September 2014. Eighty-nine percent of health centers had the readiness to perform all signal functions- (i.e., facilities which have all required equipment, supplies and trained manpower to provide all signal functions, however, complicated cases has not come to seek help in the last 3 months).

It was also found that there was a significant regional variation in the mean performance of BEmONC signal functions in the past 3 months. The analysis also indicated that the overall delivery coverage in the intervention areas was 38% with increasing trend. It was significantly higher in Tigray (50%) and Oromia (43%) regions (P-value <0.001). The percentage of the expected obstetric complications managed (i.e., met need for EmONC) was found to be 33%. Abortion complications accounted for one-third of obstetric complications managed at PHCUs. Obstructed labor, abortion complication and hemorrhage were the most common obstetric complications seen at intervention PHCUs.

The approach L10K used was tailored to the context of the intervention sites and was effective in filling the gaps and made facilities fully ready to perform all BEmONC signal functions. Thus, it has improved access to obstetric services in the intervention facilities, which eventually enhanced uptake of the lifesaving interventions against major causes of maternal and neonatal mortality in Ethiopia.
Pre-donation deferrals among whole blood donors in North Gondar Blood Bank.  Betelihem Teryfe (BSc, MSc)*, Bamulaku Emaugaw (BSc, MSc)*, Mulugeta Melku (BSc, MSc)**Department of Hematology and Immunohematology, School of Biomedical and Laboratory Sciences, University of Gondar.

**Background:** Blood transfusions form an important and irreplaceable part in management of many diseases. The availability of safe blood is a critical component in improving health care. For this, donor selection is necessary in addition to the screenings of blood bags for infectious diseases. Deferrals lead to loss of precious blood donors and blood units available for transfusion purposes. Knowledge of rate and causes of donor deferral can guide the recruitment strategy for blood donors.

**Objective:** The aim of the study was to determine the rate and reason of pre-donation deferrals among whole blood donors of North Gondar Blood Bank.

**Method:** A cross sectional study was conducted from May to August, 2014 on whole blood donors who came to donate blood at North Gondar Blood Bank. A total of 401 blood donors were selected by systematic random sampling. Pre-donation screening tests like questionnaire, physical examination and hemoglobin estimation were carried out to defer or accept a donor. Then the data was analyzed by using MedCalc® version 14.10.2 software program to determine the rate and reasons of pre donation deferrals.

**Result:** Of the 401 blood donors, 70.3% (n=282) were male and the rest 29.7% (n=119) were females. Most of the donors were replacement donors (60.8%; n=244). The total pre donation deferral rate was 24.9% (n=100), of which 86% were temporary deferrals (86%; n=86) while the rest 14% (n=14) were permanent deferrals. The deferral rate among male and female donors were 17.73% (50/282 cases) and 42.02% (50/119 cases) respectively. The top three reasons of deferral were anemia (25%; n=25), hypotension (16%, n=16) and malaria (9%; n=9).

**Conclusion:** The most common causes of deferral were temporary deferrals, which can be minimized or prevented through awareness creation and education of blood donors.
Factors Affecting Health Care Service Utilization of Mothers who had Children with Diarrhea in Ethiopia: Evidences from Population Based Survey. Mulukan Azage, MPH, Babir Dar University; Demowq Haile, MSc

Background: Appropriate healthcare-seeking practice for diarrhea includes administering ORS to the sick person, utilization of zinc supplements and seeking care at a health facility. However, many children with diarrhea are not using these interventions. This study aimed to investigate factors related to mother’s or caregiver’s treatment choices for managing childhood diarrhea at in Ethiopia.

Methods: A secondary data analysis was performed using data from Ethiopian demographic and survey 2010. Descriptive statistics were used to show the socio-demographic variables, treatment options used by care takers and exposure to mass media. Binary and multivariable logistic regressions were carried out to identify factors associated with health care utilization for childhood diarrhea.

Results: About 567(35%) (95% CI: 32.67%-37.33%) of the mothers utilized health care institutions for childhood diarrhea while 60.2% of the mothers did not seek any treatment. Those mothers who have child with age of 6-11 months had 2.16 higher chance of utilizing health care institutions for childhood diarrhea [AOR=2.16, 95% CI: 1.32-3.53] as compared to under 6 months infants. Urban mothers had 68% higher chance of utilizing health care institutions for their childhood diarrhea as compared to their rural counter parts. Antenatal care attendance [AOR=1.34, 95%CI: 1.04, 1.74], postnatal checkups [AOR=1.53, 95%C: 1.02, 2.30], awareness about oral rehydration salt [AOR=2.97, 95%CI: 2.24, 3.93] and media exposure [AOR=1.39, 95% CI: 1.13, 1.71] were also factors associated with mothers/caregivers choice of treatment option for childhood diarrhea.

Conclusion: Health care services utilization for childhood diarrhea was poor in Ethiopia. Place of residence, age of the child and the mother, awareness of Oral Rehydration Salt, ANC attendance and postnatal check were the identified factors associated with health care services utilization for childhood diarrhea. Promotion about ORS and appropriate childhood diarrhea treatment for ANC attendance and post natal check up were the recommended interventions.

Keywords: diarrhea, children, health care utilization
Assessment of Client Awareness, Service Utilization, and Satisfaction on Maternal and Newborn Healthcare in 25 Selected Districts of Ethiopia. Asfaw Dequr Deqebelo, MPH, Ethiopian Public Health Institute Abebe Bekede, MS; Theodros Getachew, MS; Mekonene Tadesse, MS; Habtamu Tekleh, BSc; MSC student; Terefe Gelibo, MPH, PhD fellow; Sabit Ababun, MPH; Amba Kebede, PhD; Kasabun Alenu, MPH

Background: Improving knowledge of obstetric danger signs and promoting birth preparedness practices are strategies aimed at enhancing utilization of skilled care. Client awareness, utilization, and satisfaction regarding the service delivery of maternal and newborn health services is important in the outcome of maternal and newborn health.

Objective: The aim of this study was to assess awareness and satisfactions of MNH care with based on clients exit interview in selected 25 districts.

Methods: A cross-sectional study design was conducted among 257 clients attending MCH services. The study was conducted in all hospitals and health centers (4 hospitals, 123 health centers) in selected 25 woredas from Tigray, Amhara, Oromia and SNNP regions of the country from July to August, 2013. Structured pre-tested questionnaire was used to collect data. Data were analyzed using SPSS v 20.

Results: A total of 257 women who used maternal and newborn health services in hospitals and health centers at the time of survey were interviewed. Out of the total clients interviewed, the majority 94 (36.6%) were from SNNPR, 77 (30.0%) were from Amhara region, 61 (23.7%) were from Oromia Region and 25 (9.7%) were from Tigray region with the mean age of 27.1 years. The major reasons for visiting facilities were, as reported by the women, included antenatal care (33.1%), family planning (31%) child and immunization (12.8%).

Clients were assessed for their satisfaction on the service, overall, 213 (82.9%) women reported that they were satisfied with the services (see Figure 2).

Accessibility and reported factors related to utilization of maternal and newborn health services

The mean time required to reach the nearest health facility was 1.1 hour for those who walk more than 60 minutes and 18.0 minute for those who walk less than 60 minutes. Overall, 16% clients reported that they were expected to pay for the services they have received. Household factors that limit women from using services include; shortage of time (26.8 %), low Income (17.5%), Lack of control over the household resources (6.2%) and Lack of companion (for women) (3.6%).

Awareness of the Danger Signs of Maternal and Newborn Illness

Overall, it appears that women in the selected districts of the 4 regions were not sufficiently aware of those danger signs of maternal and newborn illnesses those indicate the need for treatment. Problems in pregnancy that might need medical treatment reported by mothers include severe headache (35.4%), Blurred vision (12.1%), Reduced or absence of fetal movement (28.8%), High blood pressure(8.9%), Edema of the face/hands (10.5%), Convulsions(4.3%), Excessive vaginal bleeding(45.7%), Severe lower abdominal pain(40.5%) and Fever(12.5%). Newborn danger signs reported by mothers mainly concern a few issues the highest reported danger sign is fever (59.5%) followed by diarrhea (42.2%), and poor
sucking or feeding (41.6%). Overall four in ten (40.9%) of interviewed clients have good knowledge on
danger signs during pregnancy and on newborns.

Regarding perception and practice of the clients, the importance of seeking health care for pregnancy was
reported by 63.4% interviewed mothers and 79.4% these mothers reported that they have ever received
pregnancy care in their life time.

Factors associated with level of knowledge of danger signs and client satisfaction.

This study represents that there was statistically significant association between maternal satisfactions
with maternal and child health services and responsibility in the house hold (P=0.008). Mothers with
responsibility of head of the household were 3.8 times more likely to be satisfied with the services they
received than others (3.8, CI=1.1-13.1). There was statistically significant association between maternal
knowledge on danger signs during pregnancy and on newborns and occupation of mothers (P=0.016).
Self-employed mothers were 3.7 times more likely to have good knowledge on danger signs during
pregnancy and on newborns than others (3.7, CI=1.3-10.8).

Conclusion and Recommendation: Generally most of the danger signs of pregnancy and newborn
those required treatment were less likely reported by interviewed clients. Assessment of the awareness of
mothers regarding warning/danger signs those indicate women and child needs for treatment is crucial in
designing appropriate Behavioral Change Communication (BCC) strategies. Certainly some mothers
themselves suggested that HEW and a general rise in awareness levels were likely to change practices
over time.

Keywords: Warning/danger sign, satisfaction
Education Standards: A Way to Improve Quality of Health Professionals’ Training. Daniel Dejene, Jhpiego; Zerihun Gebremichael, Jhpiego; Sharon Kilwana, Jhpiego; Tegebr Yigezu, Jhpiego; Asefa Balcha, Jhpiego; Miberetab Teshome, Jhpiego; Damte W/Mariam, Jhpiego

Background: Understanding the roles of education for socioeconomic development, Ethiopia has given focus to it and achieved a lot in last two decades. There is a rapid proliferation of higher education institutions (HEIs). Tertiary education enrolment rate has grown from<1%to 5.3%. However, Reports and researches identified that quality and students achievements are not improved. Curricula, adequacy of learning resources, teaching and assessment processes needed improvement. Health professionals’ education is not an exception. In addition, many HEIs do not have quality assurance tools despite the higher education proclamation no.650/2009 prescribe that HEIs should have so.2,3

Program Description: The five years USAID’s Strengthening Human Resources for Health(HRH) project (2012 – 2017), implemented by Jhpiego led consortium, supports institutions (Universities and Regional Health Science Colleges) to improve quality of health trainings. To this end, the project plans to establish strong internal quality assurance (IQA) mechanisms. To support these, the project in collaboration with stakeholders developed defensible standards for regular internal performance and quality assessments of health trainings at HEIs.

Here, the authors of this abstract describe the processes employed and results achieved during developing standards for enhancing quality of health professionals’ education in Ethiopia.

Standards Development Procedures: Pre-service health training was identified by Ministry of Health, the project and institutions as an area to be improved because of pressing quality concerns. Core functions (teaching & assessment) and support processes (resources, management & student support) are characterized. Process mapping was used to analyze each function for inputs, processes and outputs. The analyzed functions were elaborated as draft performance standards using relevant national guidelines and international references by subject matter experts. The standards were mapped to national and global standards like those of World Health Organization, World Federation of Medical Education, and International Confederation of Midwives etc... Draft standards were reviewed in a national workshop by experts from health training Universities, regional health colleges, Higher Education Relevance and Quality Agency(HERQA), Technical Vocational Educational Agency (TVET), Ministry of Health (MOH) and professional associations. Standards were also piloted and then improved accordingly.

Findings: A total of 61 performance standards, 30 clinical teaching sites standards and 12 outcome indicators were developed. Each standard showed what to do and how to do the globally recommended educational functions. Standards were collated as class room instructions (9 standards), practical teaching (15), student assessment (11), education management (15); infrastructure and materials (11) and clinical care (30).The standards encompassed the minimum technical, managerial, motivational requirements and amenities for quality education of health cadres. Local contexts were also considered. Standards were written in user-friendly and easy to understand language. They were distributed to 42 health training institutions and used by their IQA as regular biannual assessment tools. These tools laid a foundation for a more comprehensive accreditation and quality improvement standards of HERQA.

Conclusion: Developing scientifically sound and locally applicable performance standards supports HEIS to have a robust IQA functions and enhance the quality of pre-service education in health.
Health Facility Networking for Maternal Health Services in Addis Ababa: A Qualitative Study on Hospital to Health Center Networking for Maternal Referral System in Addis Ababa. Tsigerda Bekele

Background: Health centers in Addis Ababa are often under-utilized for maternal delivery services; in contrast, hospital maternity wards are overcrowded mainly due to inappropriate referrals. A formal referral network protocol for maternal health was launched in 2012 in Addis Ababa that outlines procedures to ensure women receive care at the appropriate level and to relieve volume pressures in urban hospitals. To date, the functionality of these networks has not been studied.

Methods: A qualitative approach was used to investigate three of the eight networks’ experiences implementing the referral protocols. The networks investigated in this study were the St. Paul’s Hospital network, the Gandhi Memorial Hospital network and Zewditu Memorial Hospital network. Data were collected through key informant interviews, using interview guides to identify the success factors and barriers for effective and efficient communication and referral.

Results: The level of success in implementing the referral protocol was not the same; the St Paul hospital network was more successful in implementing the referral protocol, compared to the Gandhi and Zewditu networks. The successful implementation was due to the capacity building activities for its catchment health centers which included the midwifery exchange program, emergency drills, providing basic obstetric training and follow-up supervisions. These activities facilitated better communication within the network, opportunities to share resources, and greater understanding and collaboration between facilities. Insufficient capacity building, inadequate support from the RHB, lack of follow up and mentoring at health centers and phone network interruption are found to be barriers for successful implementation of the referral protocol.

Conclusion & Recommendations: Referral network works better to relieve the pressure volume of hospitals if appropriate interventions are implemented simultaneously to improve basic obstetrics and communication skills within networks.
Implementation Status and Client Satisfaction of Focused Antenatal Care (FANC) in Ethiopia. Mekonene Tadese

Background: Focused Antenatal Care (FANC) is a goal-oriented antenatal care approach, which was recommended by researchers in 2001 and adopted by the World Health Organization (WHO) in 2002 and issued guidance to be implemented in the developing countries. As one of the developing countries, Ethiopia has accepted and being implementing FANC which aims to promote the health of mothers and their babies through targeted assessments of pregnancy related complications.

Objective: The main purpose of this study is to assess the success level of the implementation of the model which is known as FANC and the level of service delivery satisfaction in Ethiopia.

Method: A facility based cross-sectional study design was used. The study employed mainly a quantitative method from randomly selected health facilities of regions and city administrations. Primary data were collected using, health care provider interview, Observation of ANC consultation and exit interview of clients. Data were entered using EPI-INFO and analyzed using SPSS for windows version 16 statistical software.

Results: A total of 593 pregnant women from seventy four (74) health facilities were participated on the study. The larger proportion of pregnant women (41.4%) who visited the health facilities for the first ANC consultation was during their second trimester whereas only about 14% had first ANC consultation at early period (during the first trimester). Vast majorities (98.4%) were satisfied with the information given during ANC visits. The majority health providers (94.7%) responded that implementation of focused ANC was started in their respective health facility, of which about (61%) stated that it was fully implemented. With regard to the quality of focused ANC at the facility, approximately three-fourth of providers indicated that it is above average. It has been observed that about 72% of the providers asked the clients whether there were any other symptoms or problems the client thought that might be related to pregnancy though few providers failed to discuss about some danger signs of pregnancy.

Conclusion and Recommendation: Satisfaction on the focused ANC services provided is very high, implying that FANC is found to be acceptable both by the clients and care providers. Majority of the providers believed that the role of FANC in reducing maternal and child mortality is very high. In most of facilities the implantation of FANC is started, although it was partially implemented at nearly 1 in 3 the health facilities. Majority of pregnant women who had ANC visits planned to give birth at health facility.

Keywords: Focused antenatal care; satisfaction; pregnant women

**Background:** Elderly people usually do suffer from age related impairments, and chronic non-communicable diseases. However, we do read very few reports on health status of elderly people in Ethiopia.

**Objective:** The main objective of this study was to assess the health status of elderly people in Bahir Dar City with emphasis to Shumabo Sub City where probably most retired employees of Bahir Dar textile factory reside.

**Methods and Materials:** A cross sectional community based study was conducted using consecutive sampling technique in the second week of August, 2014. This week was selected because it was fasting week for Orthodox Christianity followers so that we can do fasting blood sugar. We went house to house, searched for elderly people (aged ≥ 50 years), measured blood pressure, and did fasting blood sugar. We also collected data on history of hypertension, asthma, diabetes mellitus, and on perceived physical, vision, hearing, and mental impairments. This study was conducted as part of community service by the GAMBY College of Medical Sciences.

**Result:** A total of 471 (318 female and 153 male) elderly people were included in the study. Of these, about 33.3%, 20%, 12.7%, of them had hypertension, bronchial asthma, and diabetes mellitus, respectively. Moreover, 39.3%, 15.4%, 14%, and 9.7% of them had vision, audio, physical, and mental impairments, respectively. Nearly 20% of them were dependent, and were under care by their children or grand children. Majority of them did not know that they had diabetes, or hypertension. For most of them the only formal income was pension ranging from 150 to 450 Birr. None of them were covered by safety net. We have witnessed that life become miserable to these people, and they seem to be completely forgotten.

**Conclusion:** This study revealed that elderly people in Bahir Dar suffered from undiagnosed and untreated chronic non-communicable diseases in addition to age associated impairments. It is recommended that elderly people be covered with safety net programs.
Broadcast Media Serving as a Tool for Addressing Multi-Sectoral Response for Sustainable Youth Development: The Experience of Integrated Family Health Program (IFHP). Solomon Abebe, M.A., Communications Manager for the Integrated Family Health Program (IFHP); Ethiopia. Mengistu Asmank, MD, MPH, Chief of Party for the Integrated Family Health Program (IFHP); Workineh Kereta, MPH, Adolescent and Youth Reproductive Health Senior Advisor, Integrated Family Health Program (IFHP).

Significance/background: Half of the world’s population, approximately three billion people, is under the age of 25, with almost 1.8 billion between the ages of 10 and 24. Almost 90% live in developing countries face enormous challenges, ranging from a lack of educational and employment opportunities to child marriage and pregnancy, unsafe abortion, and sexually transmitted infections, including HIV. Thus, these segments of the population require integrated response in order to contribute to sustainable development. The involvement of high level decision makers from the different sectors will help towards achieving common understanding in youth development issues and providing the opportunity for coordinated actions.

In line with this, the Integrated Family Health Program (IFHP) designed broadcast media intervention using local radio to reach high level decision makers to bring Integrated Multi-Sectoral Response for Sustainable Youth Development in Ethiopia.

Program intervention/activity tested: Initially, the Integrated Family Health Program (IFHP) designed communication strategy for addressing Integrated Multi-Sectoral Response for Sustainable Youth Development in Ethiopia. The strategy focused on promoting the issue, audience analysis and Segmentation, Setting objectives, selecting appropriate channels, access to the media, Sequential activities, developing key messages, message delivery, and evaluation. Based on the strategy, a weekly media program focused on reaching high level Ethiopian ministers established with Fana Broadcasting Corporate.

Before contacting the aforementioned media house, creative brief developed to make the programs specific and to bring impact. According to the creative brief high level decision makers segmented as primary audience; desired behavior identified, the key constraints identified and Integrated Multi-Sectoral Response selected as a call to action.

Method: Program footages focused on Integrated Multi-Sectoral Response for Sustainable Youth Development in Ethiopia produced by Fana Broadcasting Corporation (FBC).

Results/key findings: Primarily, discussion held among youth representatives and leaders drawn from various youth Associations to understand the magnitude of the problem, major challenges of youth in Ethiopia, and put the way forward. Members of the association described that Ethiopian youth are vulnerable for social, psychological, and economical problems.

Using information gained from the youth representatives, FBC conducted exclusive interview with the following sector ministries of the Federal Democratic Republic of Ethiopia through their respective ministers: Ministry of Foreign Affairs, Ministry of Education, Ministry of Urban Development & Construction (MoUDC), Ministry of Culture and Tourism, Ministry of Health, Ministry of Agriculture, Ministry of Women, Children, and Youth Affairs. In their interview the whole ministers stressed that Integrated Multi-Sectoral Response for Sustainable Youth Development should be implemented very
soon to address challenges of youth in Ethiopia. The ministers also recommended that the response needs crossing boundaries across multiple government sectors and partners through practical coordination and partnership for better impact in rescuing the lives of young people.

Program Implications/lessons: Broadcast media serves as a tool to bring high level decision makers in one table specifically for addressing Integrated Multi-Sectoral Response for Sustainable Youth Development in Ethiopia. It also plays a big role in integrating the efforts of various sector ministries and fulfills different needs of young people.
Health Extension Workers and Mothers’ Attitudes to the Utilization and Acceptance of Antenatal Care and Skilled Birth Attendance in Geter Adwa, Tigray Region. Ruth Jackson,1 Fisaha Haile,2 Hagos Gedefay,4 Assefa Hailemariam,7 Tesfay Ghera1

Background: Although Ethiopia is close to achieving Millennium Development Goal (MDG) 5, there are still barriers to antenatal care (ANC) and skilled birth attendance (SBA) that may affect reaching the target of reducing maternal mortality by 75 percent by 2015. We examine some of the barriers to ANC and SBA from the perspective of women and Health Extension Workers (HEWs) at the community level.

Objective: This study explores the attitudes and perceptions of women and HEWs about ANC and referral to health centers and hospitals for SBA in Geter Adwa, Tigray Region.

Methodology: This qualitative study explores the attitudes and perceptions of women and HEWs. HEWs attended a two-day workshop in Adwa where they were trained in basic interview skills, developed research questions, discussed the ethical conduct of research, how to recruit participants, and how to collect data. Following the workshop the HEWs returned to their kebele2and conducted three in-depth interviews using semi-structured questions based on the objectives and themes of the study. Semi-structured interviews were also conducted with the HEWs, and health workers from the woreda3 health office. All data was analysed thematically.

Results: HEWs interviewed 48 women about maternal health seeking behavior in Geter Adwa Woreda. Key findings from the HEWs show that most women’s attitudes and perceptions towards ANC services and SBA at the closest health facility is positive. While utilization of SBA is increasing, there are still barriers which cause women to deliver at home including distance and lack of transportation due to geographical factors; and, the absence of many husbands for almost six months every year due to off woreda farming in Western Tigray. This means there is no one to look after other children, the cattle and the house if the woman attends ANC or facility delivery. Other factors include traditional factors such የсоедин, which means pregnant women are afraid of meeting other pregnant women although this does not necessarily discourage health facility delivery, and, discouragement from mothers and mothers-in-law who delivered their children at home. Some mothers have experienced disrespectful care at the hospitals. All maternal health services are provided free of charge but husbands resist paying extra costs such as fares to return home and the cost of food at health facilities.

Facilitators to SBA include HEWs identifying all pregnant women through the Health Development Army and referral of all women to health facilities. The Health Development Army assists HEWs by advocating the benefits of SBA to women and men and notifying the HEWs when a woman’s labor starts. Husband’s play a crucial role in helping their wives attend ANC and SBA. All HEWs are contacted at the
start of labor and then call for the ambulance to take laboring mothers to the closest health facility for delivery.

**Conclusion:** Most women in Geter Adwa Woreda have had good experiences utilizing ANC and SBA. The management and use of the ambulance service reflects the commitment and multi-sectoral response to improving maternal health care. The Health Development Army should continue to focus on advocating the benefits of maternal health care services. Many HEWs foresee a future where all women consider ANC and SBA as important and necessary without the initiation of the HEWs and the Health Development Army. According to the HEWs, the attitudes and perceptions of women about ANC and referral to SBA in Geter Adwa has changed significantly in recent times.
Does Institutional Delivery have Effect on Neonatal Survival in Low Resource Settings? Evidence from Community-Based Longitudinal Study in Ethiopia. Yohannes Adama Melaku*, Berhe Weldearegaw*, Fissaha Hailie Tesfay†, Semau Ferede Abers*, Loko Abraham*, Alemnegus Argay*, Frehiwot Esthet*, Asbenafi Haile†, Yihunie Lakew*, John Kinsman* * Mekelle University, College of Health Sciences, †Mekelle University, College of Health Sciences, Department of Public Health, Mekelle, Ethiopia 1Mekelle University, College of Health Sciences, Department of Medicine, Mekelle, Ethiopia 2Center for Disease Control and Prevention, CDC-Ethiopia, Addis Ababa, Ethiopia 3Ethiopian Public Health Association (EPHA), Addis Ababa, Ethiopia 4Umeå Centre for Global Health Research, Department of Public Health and Clinical Medicine, Umeå University, Umeå, Sweden

Background: An important component of efforts to reduce health risks to neonates is increasing the proportion of babies that are delivered in health facilities. In Ethiopia, however, there are insufficient evidences on the effect of place of delivery on neonatal survival. Therefore, the aim of this study was to determine the effect of place of delivery on neonatal survival.

Methods: Data were extracted from Kilite-Awlaelo Health and Demographic Surveillance System’s database (September 2009 to August 2013) called Household Registration System (HRS version 2.1). We used STATA 11 for the analysis. Descriptive analysis including proportions, medians and inter quartile range were calculated for both maternal and neonate characteristics. Survival of neonates was computed by place of delivery. Kaplan Meier survival and Cox proportional hazard model were used to identify the independent predictors of neonatal mortality.

Findings: In the four years period, a total of 5782 women gave live births. Of these live births, 99 (1.7%) were dead in the first 28 days of life. Almost three-fifths (59.6%) of neonates dead within 48 hours of birth with median age of 2 days and inter quartile range of 1 to 7. The total neonatal mortality was 17.1 [95% CI: 14.0, 20.7] per 1000 live births. Despite significant increase level of institutional delivery by 5 folds (from 14.4% to 70.2%) in the four years period, neonatal mortality didn’t changed significantly. In multivariate cox-regression, neonates in early age were found to be at higher risk of death compared to late ages. Place of delivery was not significantly associated with neonatal survival.

Conclusions: Majority of the neonatal deaths were occurred in the first weeks of life and there is no survival difference by place of delivery. As a result, improving service quality and close follow up of neonates in the first few days after birth in health institutions are recommended to decrease neonatal mortality.
How Does Environmental Health Training Meet the National Demand in Ethiopia: Is there a Need for a Training Approach Reform? Akemagehu

Haddis, PhD, Associate professor of Environmental Health, Jimma University

Background: Ethiopia started organized training of environmental sanitation workers in early 1950’s. The Gonder College of public health started graduating its first batch of Sanitarians in 1952. Since then thousands of Environmental health graduates have been trained by many universities in Ethiopia. However, it appears that Environmental health problems in the country are getting worse and access to water and sanitation is still one of the lowest in Africa.

Objective: The general objective of this study was to investigate the relevance of Environmental health training to the service sector and assess whether reform in training and Job setup is needed.

Materials and methods: A cross sectional study was conducted in May and June 2014 by analyzing the curriculum and training capacity in 5 Universities in Ethiopia who train Environmental health professionals at a Bachelorette level namely: Jimma University, University of Gondar, Haromaya University, Hawassa University and Wollo University. Main parameters were Curriculum consistency, Objective of the training, training facilities, academic level of trainers and the link with consumers or employers. Field visits were made to a total of 10 health institutions in 10 Woredas of three regions where the training universities are located namely, Oromiya, Amhara and SNNPRS. The aim of the field visit was to check to what level the training objectives match with service assignments and to identify the most frequently implemented programs.

Results and Discussion: The results indicate that all Universities are currently using a harmonized curriculum (with slight variation) initiated by the ministry of Education. Relevance of the curriculum to the service sector is not clearly known by the training Universities because there is no link or feedback from the employers. Objectives and professional competencies and course contents were listed in the curriculum without on Job evaluation. There was no proper consultation of the employers either. Only 1 of the five universities (Jimma University) has good facility for training in which other universities also use this facility for laboratory based training. The staff profile is also much better at Jimma University where 25% of the 32 academic staff members are PhD holders. Nearly 96% of the graduates have job dissatisfaction and only 12% were assigned to do the task which has direct relation to their training. Activities are limited to inspection, health education and supervision of the health extension program. Trainings like Housing, Vector control, and pollution prevention are rarely practiced. Resource allocation and organizational problems are mentioned as major constraints.

Conclusion and Recommendations: In conclusion, although this program has been recognized as a backbone to public health in Ethiopia, the progress towards public health improvement is not that significant when evaluated against the long history of service and training.

It is recommended that the training of Environmental health should be focused to meet national demands. Assigning universities to specialize in a particular aspect of environmental health will avoid duplications. There is a critical need to revisit the organization and resource allocation as well.
HIV

Occupational Exposure to HIV/AIDS Risky Conditions and Post Exposure Prophylaxis Utilization among Health Care Workers in Gondar City, North West Ethiopia. Getahun Kebede, MPH, Department of Environmental and Occupational Health and Safety, Institute of Public Health, University of Gondar; Yifokire Tefera, MSc, Department of Environmental and Occupational Health and Safety, Institute of Public Health, University of Gondar; Teresa Kisi, MPH/Epico-Biostat, Department of Epidemiology and Biostatistics, Institute of Public Health, University of Gondar

Background: It has been estimated that every year more than quarter a million health care workers exposed to HIV risky conditions in health care settings, more so in developing countries, with high incidence of HIV/AIDS and unsafe practices. Particularly, Sub-Saharan African countries share at least half of these occupational exposures to HIV risky conditions among health care workers.

Objectives: The aim of this study was to determine prevalence of occupational exposure to HIV/AIDS risky conditions and post exposure prophylaxis utilization among health care workers in Gondar city public health facilities, North West Ethiopia.

Methods: Institution based cross sectional study was conducted from April 1-20, 2014. The study included 401 health care workers who were selected from 4 public health institutions (1 hospital and 3 health centers) by simple random sampling technique. Data were collected by interviewing health care workers using structured and pretested questionnaire after getting ethical clearance from the ethical review board of University of Gondar, supportive letter from each health institution and verbal consent from the study participants. Then, collected data were entered using EPI INFO version 3.5.3 statistical software and exported to and analyzed using SPSS version 20.0. by defining exposure to HIV/AIDS risky conditions as a percutaneous injury (needle stick or a cut by sharp objects) or the contact of mucus membranes or non-intact skin with blood, tissue or other body fluids that are considered to be potentially infectious.

Results: From a total of 401 health care workers involved in this study, 162(40.4%) reported at least one history of occupational exposure to HIV/AIDS risky conditions in the last one year. But, only 41(25.31%) of the exposed health care workers received post exposure prophylaxis for their exposure against HIV/AIDS. 5-10 years work experience, lack of training on infection prevention, long working hours per week, absence of work guidelines, and dissatisfaction with current job were independently associated with accidental occupational exposure to HIV/AIDS risk conditions.

Conclusion: This study found high prevalence of occupational exposure to HIV/AIDS risk conditions and very low post exposure prophylaxis uptake among health care workers in Gondar city. Therefore, effective and goal oriented educational programmes targeting at health care workers and establishment of surveillance systems for registering, reporting and management of occupational exposures in health care settings are quite important.
Prevalence of Opportunistic Infections and Associated Factors among HIV Positive Patients Taking Anti Retroviral Therapy in Debre Markos Referral Hospital, Northwest Ethiopia. Nurilign Abebe, BSc MPH, Debre Markos University, Debre Markos; Getachew Mulu, BSc, MSc.

Introduction: The natural history of HIV disease may be indirectly affected by the occurrence of opportunistic diseases, because HIV viral load increases in patients with acute opportunistic diseases. Opportunistic infections are one of the major causes of morbidity and mortality in patients with HIV infection throughout the world. Though there are many studies on HIV patients regarding ART adherence, survival and risk factors, but still very limited number of study on opportunistic infections among HIV patients.

Objective: the aim of this study was to study prevalence of opportunistic infections and associated factors among HIV positive patients taking anti retroviral therapy in Debre Markos Referral Hospital, Northwest Ethiopia, 2013

Methods: a sample of 423 patients was taken from Debre Markos Referral using systematic random sampling method. Patients entered to treatment and care for 5-7 years was included after ART is started. Using routine data on opportunistic infection records by duty clinician the decision was made. Data were entered using Epidata version 3.5 and analyzed using SPSS version 16. Logistic regression was fit to identify possible associated factors with the development of opportunistic infection after ART in initiation.

Result: Majority, 241 (57%) of the study participants were females patients. The mean age of participants was 35.17, with standard deviation (SD) 9.481 years. A total of 181 opportunistic infections (OIs) were observed from the study participants. From these; 86 (61%) of patients had only 1 opportunistic infection during study period, while the prevalence 2, 3, and 4 OIs per one patient during the study period were 49 (34.8%), 5 (3.5%), and 1 (0.7%) respectively. Associated factors for OIs were; Age less than 40 years old (AOR=0.471, 95%CI=0.247, 0.896) (preventive); baseline WHO stage of stage I-II (AOR=4.759, 95%CI=2.163, 10.469) (risk); drug use (AOR=4.733, 95%CI=1.185, 18.915) (risk); Good ART adherence (AOR=0.163, 95%CI=0.051, 0.522) (preventive); current hemoglobin level of ≥10 g/dl (AOR=0.313, 95%CI=0.162, 0.605) (preventive); and recent weight of < 60 kg (AOR=3.658, 95%CI=1.656, 8.078) (risk).

Conclusion & recommendation: Opportunistic infections were still high among HIV patients on ART. Older age, patients with advanced HIV stage, poor adherence for treatment, low hemoglobin and decreased weight of patient were significant predisposing factors for OIs among HIV patients after ART initiation. Therefore, special OI prevention technique has to be established for patients with the above condition.

Keywords: Opportunistic infection, Prevalence, Debre Markos, HIV patients
Stigma Against People with HIV/AIDS in Rural Ethiopia, 2005 to 2011: Signs and Predictors of Improvement. Eshetu Girma, PhD; Lakew Abebe, MPH; Sudhakar N. Morankar, PhD; Department of Health Education and Behavioral Sciences, Jimma University, Jimma, Ethiopia; Michelle R. Kaufman, PhD, Rajeev J. Limaye, PhD, Center for Communication Programs, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD, USA; Rajiv N. Rimal, PhD, Department of Prevention and Community Health, George Washington University School of Public Health and Health Services, Washington, DC, USA

**Background:** AIDS-related stigma, limits the impact of public health interventions through delays in testing and poor treatment adherence, and it deters timely support and care. It is considered as a key element of the “hidden epidemic” in the fight against HIV/AIDS.

**Objective:** This study sought to determine trends in and factors associated with stigma against people with HIV/AIDS in rural Ethiopia over a 6-year period from 2005 to 2011.

**Methods:** This study used data from the 2005 and 2011 Ethiopian Demographic and Health Surveys. We downloaded the DHS dataset from www.measuredhs.com and analyzed data using Stata 10. In addition to key socio-demographic data, we created several scales using items asked in the original DHS surveys to assess knowledge of mother-to-child transmission of HIV/AIDS, comprehensive knowledge of HIV/AIDS, stigma against people living with HIV/AIDS, and HIV testing experience. Descriptive statistics for mean differences were calculated using t tests and analysis of variance (ANOVA). Multivariate linear regression analyses were computed to assess the independent effect of each variable on stigma; interaction effects with time were also assessed.

**Results:** HIV testing rates among males increased dramatically from 2005 to 2011 (8-35%). Among females, testing rates dropped 10% during the same period. HIV knowledge was associated with stigma, shown by a negative correlation in both data waves, but groups with higher knowledge tended to have lower stigma. Lower levels of knowledge were uniformly associated with higher levels of stigma, but higher levels of knowledge, combined with higher levels of education, were associated with lower levels of stigma in a multiplicative way.

**Conclusion:** Improvements in knowledge can serve as an important intermediate process to behavior change. The found interaction suggests improvements in either education or knowledge can reduce stigma, and when both are improved, stigma reduction will be more dramatic.

**Keywords:** Stigma, Knowledge; HIV/AIDS, Rural, Ethiopia
Comparison of Effects of Isoniazid Preventive Therapy Plus ART and ART Alone on the Risks of all-cause Mortality among HIV-infected Individuals in Addis Ababa, Ethiopia: A Cohort Study. Dumessa Edessa and Jimma Likisa

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Ambo University, College of Health Sciences, School of Pharmacy, Ambo, Ethiopia

Background: Tuberculosis (TB) is the most common human immunodeficiency virus (HIV) associated opportunistic infection and the leading cause of death in HIV-infected individuals of sub-Saharan Africa. Antiretroviral therapy (ART) and isoniazid preventive therapy (IPT) are the two useful TB preventive strategies available to reduce the burden of TB among people living with HIV (PLHIV). The aim of this study was, therefore, to compare effects of IPT plus ART and ART alone on the risks of mortality among PLHIV.

Methods: A retrospective cohort study was undertaken at Tikur Anbessa Specialized Hospital and Zewditu Memorial Hospital on 185 patients receiving IPT (6 months) plus ART and 557 patients receiving ART alone. Mortality rate (MR) per 100 person-years (PYs) was used to compare mortality rates in the groups. The times to death and survival probabilities of the patients were determined using Kaplan Meier. Cox proportional hazards model was employed to investigate the impact of IPT plus ART on survival of PLHIV.

Results: All-cause mortalities noted in patients treated by IPT plus ART versus ART alone, respectively, were 18 (4.5 cases/100 PYs) and 116 (10 cases /100 PYs). In reference to ART alone, the IPT plus ART significantly reduced the risks of death (aHR 0.48; 95% CI 0.38 – 0.69) and median time to death from all causes was about 26 months (IQR 19 – 34). Moreover, WHO stage IV (aHR 2.42: 95% CI 1.42 – 4.11), CD4 values ≥350cells/mm3 (aHR 0.52; 95% CI 0.28–0.94), adherence to ART (AHR 0.12; 95% CI 0.08–0.20), primary levels of education (aHR 2.20; 95% CI 1.07 – 4.52); and alcohol addiction (aHR 1.71; 95% CI 1.04–2.81) were factors strongly associated with mortality.

Conclusion: We found that use of IPT with ART impacts more on all-cause mortality and delays the time to the all-cause mortality compared to ART alone.

Keywords: Antiretroviral therapy, Isoniazid preventive therapy, PLHIV, all-cause mortality
The Effect of Isoniazid Preventive Prophylaxis on Immunological Response Rate among Highly Active Anti-Retroviral Therapy Patients in Addis Ababa, Ethiopia: A Retrospective Cohort Study.  

Zemedu Mehamed, MPH, Arba Minch University; Mesfin Kote, MPH; Andamlack Gizaw, MPH

**Background:** Tuberculosis is a common complication and leading cause of death in HIV infection. Antiretroviral therapy lowers the risk of tuberculosis, but may not be sufficient to control HIV-related tuberculosis. Isoniazid preventive therapy reduces tuberculosis incidence significantly. The question here is how many times the immunological reposes rate will be change by preventing about 68% of TB cases by IPT.

**Methods:** Retrospective cohort study design was used to compare immunological responses rate of IPT treated and not treated HAART patients in Addis Ababa. Rate of immunologic response was examined at 6, 12, 18, and 24 months of follow-up period. Three hundred sixty eight HIV infected patients who started HAART in selected health facilities were included in the study. The time required to get immunological response was analyzed by Kaplan-Meier survival curve. Adjusted hazard ratio was calculated with a 95% confidence interval by Cox proportional hazards model to determine rate of immunological response. To ascertain the association; bivariate and multi variable Cox proportional hazard model was used. Statistical significance was considered with two sides P-value of 0.05.

**Results/Findings:** The overall tuberculosis incidence rate was 29.1 person per year % with 95% CI of 25.1–34%. The mean CD4 count was ranged between 124.6 cell/μl at baseline and 345.4 cell/μl at the end of follow-up period. Among patients who received IPT, the rate of immunological rate was 74.3%; it has statistical significances (P-value 0.012) different when compared to those didn't treat with IPT during the initiation of HAART. The median time to get immunological response was 18(75% percental 12) month. At the end of follow up period 73.2%(76.6% for NVP and 69.8% for EVF P-value 0.13) of the study population had immunological response. Multivariate Cox proportional hazards modeling revealed a an association between baseline CD4 count(B2, P-value 0.003), reduction in opportunistic infections (AHF 3.4; P < 0.001) and taking IPT with immunological response rate

**Lessons and Recommendations:** As a conclusion there was a significances statistical rate a difference among study participates and the effect of IPT on change of mean CD4 count and immunological response was comparable and effective. Initiation of ART with high baseline CD4 count, in combination of IPT and with any ART regimen was recommended.
Predictors of Non-Adherence with Concurrent Treatments among HIV/TB Co-Infected Patients; Case-Control Study. Desta Hiko, MPH, College of Public Health and Medical Science, Department of Epidemiology, Jimma University; Beyene Wondafrash, MD, MSc, College of Public Health and Medical Science, Department of Population and Family Health, Jimma University; Misra Abdulahi, MPH, College of Public Health and Medical Science, Department of Epidemiology, Jimma University

Background: Patients' adherence to their medication regimens among Human Immune Deficiency Virus and Tuberculosis co-infected patients has been reported to be influenced by the interaction of number of factors. These factors can be grouped in to health-system factors, medication factors and personal factors.

Objective: To identify the predictors of non-adherence with concomitant treatments among HIV/TB co-infected patients in Jimma Zone

Methods and Materials: Hospital based, unmatched case-control study was conducted from January-March, 2013 in Jimma University Specialized and Health Centers in Jimma Zone who started co-management among adult (>18 years) HIV/TB co-infected patients taking Antiretroviral Therapy and Anti-tuberculosis medications. The study included 160 study participants (80 cases and 80 controls). Data was entered in to Epi-data version 3.1 and then exported to SPSS version 16.0 for windows software for analysis. Bivariate and multivariable logistic regressions were used to determine the predictors of non-adherence with concomitant treatments among HIV/TB co-infected patients.

Result: Being farmer (AOR=0.04, p-value=0.010), being illiterate (AOR=16.30, p-value=0.017), being able to read (AOR= 57.00, p-value=0.003), having medication swallowing difficulty (AOR=4.91, p-value=0.025), having opportunistic illness (AOR=4.90, p-value=0.019), having social support (AOR=3.40, p-value=0.047), having shortage of food (AOR=8.84, p-value=0.007), worrying about medication burden (AOR=25.81, p-value=0.00), waiting 61-90 minutes at health institution (AOR=13.37, p-value=0.049), waiting 90 minutes and above in health facility (AOR=7.37, p-value=0.041) and number of providers (AOR=19.20, p-value=0.001) were independent predictors of non-adherence with concurrent treatments.

Conclusion and Recommendation: Patient related and psychosocial risk factors were predictors of non-adherence with concurrent treatments. Strict follow up of medication side effects, detection and treatment of opportunistic infections, sustainable social support to patients living TB-HIV, further improving number and frequency of medications and strategies to reduce waiting time in health facilities are areas that should be given emphasis.

Keywords: Non-adherence, HIV/TB co-infection, Case-control
HIV Prevalence among Exposed Infants in Amhara Region, Ethiopia.

Woynesbet Gelaye¹, Ambahun Chernet¹, Bokretion Gidey¹, Amsalu Feleke² ¹Amhara Regional Health Research Laboratory Center, ²University of Gondar

Background: Vertical transmission of HIV can occur in utero, during labor or after delivery. The objective this study was to determine the prevalence of HIV among exposed infants in Amhara National Regional State, Ethiopia.

Method: Facility Based Cross sectional study was designed. Secondary data was collected from registry of regional laboratory, Bahirdar from February –April, 2012. The associated factors were tested for significance using multivariate analysis. The significance level at 5% and the limits of reliability at 95% was used.

Result: Out of 6307 exposed infants, whose mean age was 4.12 ± 3.46 month 9 % were positive for HIV by Molecular technique. No significant association was observed between HIV prevalence and age and sex of infant. Significant association was observed between health facility and HIV prevalence; $P = 0.041$ (CI; 1.014, 1.944).

Conclusion and Recommendation: prevalence of HIV among exposed infants in Amhara region is 9 %. The positivity rate is high in those infants who were born from Hospitals. To decrease the incidence of infection among exposed infants and to attain Millennium development goals more should be done at the health facilities to strengthen Prevention of mother to child transmission service.

Keywords: HIV, Infant, Amhara.
Assessment of HIV Serostatus Discloser and its Influence on Adherence to ARV Treatment among HIV-Infected Adolescents in Addis Ababa, Ethiopia. Fikre Fikadu, MSc, Department of Community Health, Addis Ababa University, June 2013

Objective: To assess the magnitude of HIV serostatus disclosure and its effect on ART treatment adherence among HIV-infected adolescents in ART care and treatment providing health facilities in Addis Ababa.

Methods: A facility based cross-sectional study design was conducted among 403 adolescents in the selected six health facilities of Addis Ababa. Caregivers of adolescents of aged 10-18 years, were interviewed using a structured questionnaire. Stepwise logistic regression was conducted to identify the association of disclosure to HIV status and with adherence to ARV medication, Data entry and analyses was carried out using EPI info and SPSS version 16 statistical packages respectively.

Result: Three hundred and ninety six parents of adolescents on ART participated in this study making the response rate at 98%. Median age of the adolescents was 14 years. The level of HIV states discloser was 47%. Data showed that age greater than 14 years [AOR = (95% CI) 5.20 = (2.46-12.29)] and lower educational status of the care givers[AOR = (95% CI) 5.20 = (2.46-12.29)] were significant predictors for being disclosed. Similarly being disclose to their HIV status and being in a fixed dose HAART regimen [AOR=(95% CI)9.94,(4.48-22.08)] and [AOR and (95% CI) 8.40= (2.48-28.47)] respectively were significantly associated with good HAART adherence.

Conclusion: More than half(53%) of the adolescents who participated in the study did not know their HIV serostatus however, disclosed HIV status was significantly associated with good HAART adherence. The disclosure process should be thus systematically encouraged and organized among adolescent populations in order to improve their ARV medication adherence and prevent further HIV transmission.
Malaria

Entomological Study on *Anopheles* Mosquitoes during the Malaria Transmission Season in Tolay, Ethiopia. Wendawen Dibekulu, MSc, Debre birhan University; Meshesha Balew, PhD, Akililu Lemma Institute of Pathobiology, Addis Ababa University; Tesbome G/Michael, Akililu Lemma Institute of Pathobiology, Addis Ababa University; Melaku Girma, PhD, International Center for Insect Physiology and Ecology- (ICIPE), Addis ababa.

**Background and objectives:** Malaria is one of the Ethiopia’s foremost health problems ranking in the list of common communicable diseases. Inspite of the present control measures, the situation is worsening and this calls the need to base all control efforts on evidences. Therefore, the study was conducted to identify malaria vector(s), characterize their breeding habitats and determine the level of malaria transmission by measuring sporozoite infection rates in Tolay.

**Methods:** Adult mosquitoes were collected using CDC light traps, spray sheets and pit shelters from indoor and outdoor locations. Aquatic habitats were sampled for anopheline larvae and the associated environmental variables were measured, characterized and analyzed.

**Results:** A total of 211 *Anopheles* mosquitoes representing *An. arabiensis*, *An. demeilloni* and *An. coutani* were collected and *An. arabiensis* constituted nearly 82% (n=173) of all collections. A total of 61 blood fed *Anopheles* mosquitoes were assayed and the sources of the majority of blood meals were bovine. Identification of the late instars (III and IV) of anopheline larvae collected throughout the study period yielded nearly 84.7% *An. arabiensis*, 9.6% *An. demeilloni*, 3.2% *An. cinereus* and only 2.3% of other species (*An. coutani* and *An. christi*). Relative abundance of *An. arabiensis* larvae was significantly and inversely associated with aquatic vegetation, habitat depth and water current.

**Conclusions and recommendations**

1. *An. arabiensis* is the predominant species in larval and adult samplings showing its importance as malaria vector in Tolay as the rest of the country. Therefore, control efforts should be targeted at these breeding sites throughout the year by implementing environmental manipulation by mobilizing the community or by application of larvicides.

- *An. arabiensis* appear to show high tendencies of feeding outdoors and mainly on bovine. Therefore, cattle treatment with pyrethroids may help reduce their density.
Determinants of delay in malaria prompt diagnosis and timely treatment among under-five children in Shashogo woreda, HADIYA zone, Southern Ethiopia, 2013. Ermias Abeta (BSc, MPH, Epidemiology); Kassahun Alemu (Ass. professor, MPH, PhD student); Teresa Kisi (BSc, MPH)

Introduction: Ensuring prompt diagnosis and timely malaria treatment will prevent most cases of uncomplicated malaria from progressing to severe and fatal illness. To avoid this progression, treatment must begin as soon as possible, generally within 24 hours after symptom onset. The reason why mothers/caretakers delay in malaria prompt diagnosis and timely treatment for under-five is not well studied in the study area as well as in Ethiopia.

Objective: To assess determinants of delay in malaria prompt diagnosis and timely treatment among under-five children in Shashogoworeda, Hadiya zone, Southern Ethiopia, 2013.

Methods: An unmatched case control study was conducted from March 25 - April 25, 2013. A total sample size of 302 with 151 cases and 151 controls were selected by systematic random sampling techniques. Cases were under-five children who had clinical malaria and sought treatment after 24 hours of symptoms onset, and controls were under-five children who had clinical malaria and sought treatment within 24 hours of symptoms onset. Binary logistic regressions were done to identify determinants factors of delay in malaria prompt diagnosis and timely treatment.

Results: A total of 151 mothers/caretakers of cases and 151 mothers/caretakers of controls were interviewed. Illiterate mothers (AOR=7.14; 95% CI: 1.10, 46.39), monthly income ≤500ETB (AOR=5.49; 95% CI: 2.09, 14.45), females sex (AOR=3.45; 95% CI: 1.62, 7.34), distance from health facility >5km (AOR=4.31; 95% CI: 1.22, 15.23), no history of child death (AOR=4.21; 95% CI: 1.51, 11.68), complained about the side effects of antimalarial drugs (AOR=2.91; 95% CI: 1.15, 7.33) and khat chewing (AOR=2.38; 95% CI: 1.28, 5.79) were determinants of delay in malaria prompt diagnosis and timely treatment in the under-five children.

Conclusion: Mother’s education, monthly income, distance from health centers, had no history of child death, complained about side effects of drugs and khat chewing were predictors of delay prompt diagnosis and timely malaria treatment. Effective malaria control programs would be addressed delay presentation of children for malaria treatment.

Keywords: Prompt Diagnosis, Timely Treatment, Children
Return of Chloroquine-Sensitive Plasmodium Falciparum Parasites and Emergence of Chloroquine-Resistant Plasmodium Vivax in Ethiopia. Sekishi Kebede Mekonnen, Jimma University; Abraham Asffa; Nega Berhe, Tilahun Teklehaymanot; Tamirat Gebre; Girmay Medhin and Thirumalaisamy P Velavan.

Background: Increased resistance by Plasmodium falciparum parasites led to the withdrawal of the antimalarial drugs chloroquine and sulphadoxine-pyrimethamine in Ethiopia. Since 2004 artemether-lumefantrine has served to treat uncomplicated P. falciparum malaria. However, increasing reports on delayed parasite clearance to artemisinin opens up a new challenge in anti-malarial therapy. With the complete withdrawal of CQ for the treatment of Plasmodium falciparum malaria, this study assessed the evolution of CQ resistance by investigating the prevalence of mutant alleles in the pfmdr1 and pfcr1 genes in P. falciparum and pfmdr1 gene in Plasmodium vivax in Southern and Eastern Ethiopia.

Methods: Of the 1,416 febrile patients attending primary health facilities in Southern Ethiopia, 329 febrile patients positive for P. falciparum or P. vivax were recruited. Similarly of the 1,304 febrile patients from Eastern Ethiopia, 81 febrile patients positive for P. falciparum or P. vivax were included in the study. Of the 410 finger prick blood samples collected from malaria patients, we used direct sequencing to investigate the prevalence of mutations in pfcr1 and pfmdr1. This included determining the gene copy number in pfmdr1 in 195 P. falciparum clinical isolates, and mutations in the pfmdr1 locus in 215 P. vivax clinical isolates.

Results: The pfcr1 K76 CQ-sensitive allele was observed in 84.1% of the investigated P. falciparum clinical isolates. The pfcr1 double mutations (K76T and C72S) were observed less than 3%. The pfcr1 SVMNT haplotype was also found to be present in clinical isolates from Ethiopia. The pfcr1 CVMNK-sensitive haplotypes were frequently observed (95.9%). The pfmdr1 mutation N86Y was observed only in 14.9% compared to 85.1% of the clinical isolates that carried sensitive alleles. Also, the sensitive pfmdr1 Y184 allele was more common, in 94.9% of clinical isolates. None of the investigated P. falciparum clinical isolates carried S1034C, N1042D and D1246Y pfmdr1 polymorphisms. All investigated P. falciparum clinical isolates from Southern and Eastern Ethiopia carried only a single copy of the mutant pfmdr1 gene.

Conclusion: The study reports for the first time the return of chloroquine sensitive P. falciparum in Ethiopia. These findings support the rationale for the use of CQ-based combination drugs as a possible future alternative.

Keywords: Malaria, Plasmodium falciparum, Plasmodium vivax, Ethiopia, pfcr1, pfmdr1, pfmdr1, pfmdr1 gene copy number
Asymptomatic *Plasmodium* Infection among Pregnant Women in the Rural Surroundings of Arbaminch Town, Southern Ethiopia. Dessalegn Negga, MSc; Tefere Estebetu, Ph.D.; Daniel Dana, MSc; Tamirat Tefera, MSc

**Background:** Pregnant women with asymptomatic *Plasmodium* infections may face maternal anemia, low birth weight, premature and still births. Moreover, the carriers are major reservoirs of gametocytes for transmission. This study aimed to determine the prevalence of asymptomatic malaria and its risk factors among the pregnant women in the surroundings of Arbaminch.

**Method:** A community based cross-sectional study was conducted from April to June 2013 on 341 pregnant women in the rural surroundings of Arbaminch town, South Ethiopia. Demographic data were collected with questionnaire. Malaria parasites were detected by Giemsa-stained blood films and SD BIOLINE Malaria Ag Pf/Pv POCT [Korea]. Packed cell volume was determined to define anemia. Data were analyzed by SPSS 16 for windows.

**Result:** Of the total 341 study participants, 9.1% by microscopy with the geometric mean parasitemia of 3202.58/µl, and 9.7% by the rapid test were positive for malaria. Parasitemia more likely occurred in primigravidae (Adjusted odds ratio (AOR)=9.40, 95% CI: 4.30-60.53), secondigravida (AOR=6.34, 95% CI: 2.98-27.30), not using bed net (AOR=4.61, 95% CI: 1.48-14.41), aged 31-35 years (AOR=7.74, 95% CI: 3.31-40.42), and aged >35 years (AOR=8.26, 95% CI: 3.99-59.43) referred to multigravida, ITN users & age < 21 years, respectively. Anemia was likely higher in *Plasmodium* infected women (AOR=12.76, 95% CI: 2.40-67.73). There was a significant correlation between increasing malaria parasite and decreasing hematocrit ($r = -0.463, P = 0.009$).

**Conclusion:** Asymptomatic malaria in this study was low; however, given the high malaria risk during pregnancy, pregnant women should be screened for asymptomatic malaria; possibly by using the current rapid diagnostic tests.

**Key Words:** Asymptomatic *Plasmodium* Infection, Pregnant women, Microscopy, Malaria Rapid tests.
Malaria Surveillance data analysis from 2005 to 2013 of the South Nations and Nationalities People’s Region, Ethiopia, 2013. Daniel Tesfome1, J. Haidar1, M. Argaw2, J. Hassen1 1Addiss Ababa University school of public Health, Ethiopia Field Epidemiology training Program (Cohort 4 resident), 2Addiss Ababa Federal Ministry of Health, Southern nation and nationality people’s Region PHEM core process owner.

Background: Ongoing malaria surveillance data analysis is useful for assessing incidence and monitoring disease trends over time and evaluating the effectiveness of disease control programs. This study examined the magnitude and trends of malaria and communicated the findings for a better intervention in the region.

Methods: A descriptive study was employed for analysis of extract data on malaria indicators from the Integrated Disease Surveillance and Response System database for the years 2005-2010 and 2011-2013. All the relevant data were collected, cleaned and entered into a computer using Microsoft excel and Epi info version 7.1. The surveillance data were analyzed to show incidence trends for malaria indicators, reporting completeness, and variation in risk by reporting zones.

Result: The average estimated annual incidence of reported total malaria for the calendar years (2005-2008) has declined from 37.23 to 29.25 per 1000 persons, while (2010-2012) increased from 75.13 to 86.44 per 1000 persons, the confirmed malaria cases has increased from 9.39 to 24.40 per 1000 person with no clear decline in out-patient cases over the time period. However, the reported malaria in-patient admissions (averaging 29.48 to 12.45 per 1000) and deaths (31.30 to 8.10 per 1000 per year) showing reduction between 2005 and 2013. Out of 18 reporting zones, 61% (11/18) had average annual estimated incidence of confirmed malaria 80-150 per 1,000 persons. The reporting of cases was initially monthly and starting from 2011 it was weekly though irregularly reporting and the reporting was over 80% in 2013.

Conclusion and recommendation: Although the malaria Surveillance system and Response activities were not sufficient in reducing the outpatient cases during the specified study period, it had brought considerable impact on malaria in-patient cases and mortality because of the scaled up of interventions and therefore, it is necessary to reinforce the malaria surveillance system and scale up intervention.

Key words: cross sectional, descriptive, malaria, irregular reporting, south Ethiopia
Assessment of Prevalence of LLITNs Ownership by Householders, Utilization among the Household Members and Factors Affecting Utilization in Bako District, West Shewa, Oromia- Ethiopia June 2014. Birhanu Kenate Sori, BSc; MPH in Field Epidemiology, Public Health Emergency Expert, Oromia Regional Health Bureau; Dr Peter Wassa; Tesfaye Deti, BSc; MPH in Field Epidemiology; Dr Daddi Jima, MD

Background: Many countries across Sub-Saharan Africa are rapidly increasing the distribution of LLITNs coverage to combat malaria. However data on the use and the factors affecting its utilization are scarce for the Health planners and decision makers. Therefore, we aimed to assess the proportion of LLITNs ownership by householders, utilization among the Household members and factors affecting utilization in Bako District, Oromia, Ethiopia

Methods: A cross sectional study was conducted in Bako District of Western Ethiopia from May 1 to May 20, 2014. A total of 1320 households were selected using multistage cluster sampling. Multivariate logistic regression analysis was used to determine independent predictors of LLIN non-use.

Results: Of the total surveyed households 1175(92.45%) had at least one LLIN, but 643(51%) LLINs owned households used at least one LLIN the night before the study. Households with nearby malaria breeding site with Adjusted Odds Ratio(AOR) of 26.97(95%CI17.91-40.61), householders with monthly income greater than 1500 birr per month, households with pregnant mothers AOR 1.56 (95%CI 1.02-2.38), householders with occupation with daily laborer and unemployed AOR 1.56(95% CI 1.02-2.38), were more likely to use their nets than their counter parts.

Conclusions: This study indicated that despite high universal LLITNs coverage in the district, only half of the households were using LLIN for protection against mosquito bite. Thus, majority of the residents are at high risk of mosquito bite and acquiring of malaria infection. Therefore we highly recommend the Woreda Health Office and community health agents should work hard to increase the awareness of LLITNs utilization, The Regional Health Bureau in collaboration with stake holders should secure some additional gate way for free distribution/purchasing LLITNs for the community to get at any time in market or at health facilities like other drugs in every border of the district.

Keywords: LLITNs, LLITNs ownership, prevalence of LLITNs utilization
Dynamics of *Plasmodium Falciparum* and *Plasmodium Vivax* in a Micro-Ecological Setting, Southwest Ethiopia: Effects of Altitude and Proximity to a Dam.  

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**Background:** Refining the spatial and temporal data on malaria transmissions at a defined ecological setting has practical implications for targeted malaria control and enhancing efficient allocation of resources. The objectives of this study were to analyze the spatial and temporal distribution of *P. falciparum* and *P. vivax* around the Gilgel Gibe Hydroelectric Dam (GGHD) in southwest Ethiopia.

**Methods:** A review of confirmed malaria episodes recorded over eight years at primary health services was conducted. Using individual identifiers and village names malaria records were cross-linked to location and individual records of Gilgel Gibe Health and Demographic Surveillance System (HDSS) data, which had already been geo-referenced. The study setting was categorized in to buffer zones with distance interval of one kilometer. Similarly, altitude of the area was categorized considering 100 meters height intervals. Incidence rate ratios were estimated using Poisson model for the buffer zones and for the altitudinal levels by adjusting for the underlying population density as an offset variable. Yearly temporal variations of all confirmed malaria cases were also evaluated based on the Poisson model using STATA statistical software version 12.

**Results:** A considerable proportion (45.0%) of the *P. falciparum* episodes were registered within one kilometer radius of the GGHD. *P. falciparum* showed increment with distance from the GGHD up to five kilometers and with altitude above 1900 meters while *P. vivax* exhibited the increase with distance but, decrease with the altitude. Both species showed significantly higher infection among males than females (P < 0.01). Temporally, malaria episodes manifested significant increments in the years between 2006/7 to 2009/10 while reduction of the malaria episodes was indicated during 2004/5, 2005/6 and 2010/11 compared to 2003/4 (P < 0.01). On average, *P. vivax* was 52% less than *P. falciparum* over the time period considered. *P. vivax* was significantly higher in the years 2004/5 to 2007/8 and 2010/11(P < 0.001).

**Conclusions:** Spatial and temporal variations of malaria were observed. The spatial and temporal variations of malaria episodes were also different for the two main malaria species in the area.

**Keywords:** Ethiopia, Gilgel Gibe, malaria episodes, spatiotemporal dynamics
Comparison of Partec Rapid Malaria Test with conventional light Microscopy for Diagnosis of Malaria in Northwest Ethiopia. Meseret Birhanie*, Beley Tessema, Meseret Workineh, Department of Parasitology, School of Biomedical and Laboratory Sciences, College of Medicine and Health Sciences, University of Gondar.

**Background:** Malaria is one of the leading causes of illness and death in tropical countries. So, Early, prompt and accurate diagnosis and treatment is crucial to the management of morbidity and mortality caused by malaria and is one of the main interventions used for global malaria control. Thus this study was aimed to test the diagnostic performance of Partec rapid malaria test with reference to light microscopy for the diagnosis of malaria in Ethiopia.

**Methods:** A cross-sectional study was conducted from June 1 to July 30, 2013 among malaria suspected patients attending at Gendewuha health centers, Metema district Northwest Ethiopia. A total of 180 febrile patients were tested for malaria using Giemsa stain microscopy and Partec rapid malaria test. Data on socio demographic characteristics and clinical features of the study participants were collected using semi structured questionnaire. Data were analyzed using SPSS version 20 statistical software. Odds ratio with 95%CI was calculated.

**Result:** The sensitivity and specificity of Partec rapid malaria test were 93.8% (95% CI=87.1%-100%), 87.9 % (95% CI= 79.7% - 96.1%), respectively. While the Positive predictive value and Negative predictive value 6.4% (95% CI=77.2% - 95.5%) and 94.6% (95% CI=88.7% -100%) respectively. There was also an excellent agreement between two tests with Kappa value of 0.811(95% CI=0.625-0.906).

**Conclusion:** Partec rapid malaria test showed good sensitivity and specificity with an excellent agreement to the reference light microscopy. Therefore PT can be considered as alternative diagnostic tools in malaria endemic areas.

**Keywords:** Giemsa stain, light microscopy, Partec Rapid Malaria Test
Long Lasting Insecticide Nets Utilization and its Associated Factors in Limmu Seka District, South West Ethiopia. Miitiku Teslome MPH, College of Health and Medical Sciences, Department of Environmental Health, Haramaya University; Tessema Debela MPH, Oromia Regional Health Bureau, Jimma Zone, Atmago Health center, Jimma, Ethiopia; Tesfaye Gobena PhD, College of Health and Medical Sciences, Department of Public Health, Haramaya University; Yadeta Dessie MPH, PhD fellow, College of Health and Medical Sciences, Department of Public Health, Haramaya University.

Background: Many countries in sub-Saharan Africa including Ethiopia are rapidly increasing long lasting insecticide nets (LLINs) coverage to combat malaria. However the utilization is low when compared with LLIN possession because of various factors. Our aim was to assess LLIN use and identify factors associated with its utilization in Limmu Seka district.

Method: Community based cross-sectional survey was conducted from December 25, 2011 to February 29, 2012.

Results: A total of 830 households were selected by systematic sampling and surveyed. Ninety percent (90%) owned LLINs and 68.3% reported someone had slept under the net previous night of the survey. Perception of malaria transmission mode (AOR; 0.086 95% CI 0.03, 0.24), shapes of LLIN (AOR; 1.6 95% CI 1.31, 4.1), information source from Health Extension Worker (HEWs) (AOR; 2.4 95% CI 1.5, 3.9), media (AOR; 3.2 95% CI 3.5, 9.2), health facility (AOR; 2 95% CI 1.5, 3.9) and lower family size were predictors of LLIN utilization.

Conclusion: Long Lasting Insecticide Nets utilization was still low in relation to possession of the net. Promoting LLINs utilization especially conical shaped one through intensified health education and mass media campaign at all health facilities, schools and communities is very important.

Keywords: LLIN, Malaria, Limmu Seka
Replacement and Utilization of Long Lasting Insecticide Treated Nets in Malarious kebeles of Gida Ayana District, East Wollega Zone, Oromia, Ethiopia. Geletta Tadele, MSc1, Abdi Samuel, MSc1, Emiru Adeba, MPH1 Department of Medical Laboratory Science, Wollega University 2Department of Public Health, Wollega University

Background: In Ethiopia, insecticide treated bed nets have been used as malaria vector control since 2004. Long lasting Insecticide treated nets (LLINs) recently used for malaria control have limited lifespan of an average three years. Old unusable nets have to be replaced with new ones every three years to sustain achievement obtained in malaria prevention.

Objective: To determine sustainability of owning and utilization of long lasting insecticide treated nets in malarious kebeles of Gida Ayana District.

Methods: A community-based cross-sectional study design was used to investigate replacement and utilization of LLINs in four malarious kebeles of Gida Ayana District. The study was conducted from June 2013 on randomly sampled 420 households. Data were collected using structured, pretested, interviewer-administered questionnaire and presences of LLINs in sleeping areas were checked. Data analysis was performed using SPSS 20.0 for windows. Logistic regression analysis was used for determining LLINS ownership and socio-demographic characteristics. P values of less or equal to 0.05 were considered significant.

Results: Of the 420 households included in the study, 69.3 % possessed one or more LLINs which are owed primary (for the first time) or replaced (substituting the old bed nets after three years of use). There was no significant association between socio-demographic characteristics of respondents and LLINs owing (P-value > 0.05). Attrition rate of households in LLINs owing was 101(24 %). Of the 291 households which possessed one or more insecticides, 60.8% have replaced the LLINs after three years of use. 57.8% of respondents knew as LLINs need replacement after 3 years of use. 81.3 % and 19.7 % of respondent prefer free supply and cost subsidize supply of LLINs for sustainable owing respectively. Of 114 households who have possessed LLINs primarily, 70.2 % have used the LLINs for more than 3 years. Utilization rate of LLINs available in the households the night prior to the study was 64.9 % and in 69.75 % of households LLINs were hanged in sleeping areas. Proportion of pregnant women and under five children slept under LLINs the night preceding the study was 43.1% and 48.4% respectively.

Conclusion: old, worn out LLINs have been replaced after three years of use to sustain malaria control in the study area. Utilization of LLINs among malaria risk group was low. Every household in malarious kebeles should be included during substituting LLINs. Regular monitoring of household is required from Health Extension workers to scale-up and sustain utilization of LLINs in malaria control.

Keyword: Long Lasting Insecticide Treated Nets/ Replacement/Utilization/ Malaria control
Malaria Diagnosis and Treatment Practice Following Introduction of Rapid Diagnostic Test in Selected Health Posts of Adama Woreda, East Shewa Zone, Oromia Region, Central Ethiopia. Seid Musta Ahmed (B.Pharm, M.Sc.)*, Mebratu Tefera (B.Pharm)*, *Jimma University, Department of Pharmacy, Jimma, Ethiopia.

Background: malaria RDTs (rapid diagnostic tests) can provide a useful guide to the presence of clinically significant malaria infection, particularly when good quality microscopy-based diagnosis is unavailable. The success of the universal parasite-based malaria testing policy for fever patients attending primary health care (PHC) facilities in Ethiopia depends highly on health workers’ perceptions and practices. Rapid detection of the malaria parasites and early treatment of infection remains the most important goals of disease management.

Objective: To assess malaria diagnosis and treatment practices following introduction of rapid diagnosis test in Adama woreda health posts, central Ethiopia.

Method: A Cross-sectional study was conducted among febrile patients and caretaking health workers to determine the perceptions and practices related to RDTs. Moreover, the treatments prescribed were assessed at the selected Health posts. The study was conducted from January, 24 to February 9, 2014. From the total of 37 health posts in Adama woreda, 10 health posts were selected by simple random sampling technique. All the patients who visited the health posts during the study period and all health service providers working in the selected health posts were interviewed. Exit interviews were held with all patients (guardians in case of children) presented with fever or history of fever after securing verbal consent. Verbal informed consent was also sought from healthcare providers and other concerned bodies. The interviews were conducted by four trained data collectors.

Result: The survey was undertaken at ten health posts which use RDT for parasitological confirmation. Twenty health workers and 104 patients were interviewed at health posts. Eighty three patients (79.8%) were seen in health post with available parasite based diagnostic test (i.e. rapid diagnostic test (RDT)) and 21(20.2%) in facilities without testing (i.e. no rapid diagnostic test). The overall malaria positivity rate was 48(57.8%). Anti-malaria drugs were prescribed to all 48(100%) patients with positive RDT and to 19(54.3%) of RDT negative patients. Among non-tested patients, anti-malaria drugs were given to 12(57.1%), with a higher prescription rate in health posts without RDTs results. Among 104 patients presenting with fever or history of fever, 64(61.5%) were prescribed with antibiotics and anti-pain.

Conclusion and Recommendation: Findings from this study show that over prescription with antimalarial drugs is common in Adama woreda health posts. The use of rapid malaria diagnostics was also associated with higher prescription of antibiotics among patients with negative test results. The Adama woreda health office should provide on job and other capacity building trainings for health workers on RDTs, the diagnosis and management of other causes of fever and the importance of adhering to test results.

Keywords: Rapid diagnostic test, Malaria, Prescription practices, Health workers, patients, health posts, Adama woreda, Ethiopia
Prevalence of Cesarean Section and its Associated Factors in Eastern Ethiopia: A Hospital Based Cross Sectional Study. Fikriye Tegu (MD, MPH), Pediatrician in Hiwot Fana Specialized university hospital, Haramaya University; Melkamu Merid, MPH; Bizatu Mengitsu, MPH, PhD; Yadeta Dessie (MPH, PhD candidate).

Background: Cesarean section is an operative technique by which a fetus is delivered through an abdominal and uterine incision. When adequately indicated it can prevent poor obstetric outcomes and be a life-saving procedure for both the mother and the fetus. However, there is a growing concern about unnecessary caesarean sections (CS).

Objective: the aim of this study was to assess the prevalence of cesarean section and its associated factors in Harar, eastern Ethiopia.

Methods: A cross-sectional study was conducted in selected private and government hospitals in Harar town from February 1 to March 30, 2013. A structured and pre-tested questionnaire was used to collect data. Data were cleaned manually and entered in to computer using Epi-Info version 6 and exported to SPSS version 16 for analysis. Multivariate analysis was carried out to control confounding variables to identify the predictors of cesarean section. P value <0.05 was used to declare statistical significance.

Result: The overall prevalence of cesarean section in Harar was 34.3%. The prevalence of cesarean section in private versus public hospitals was 58.7% (84/143) and 26.6% (122/458) respectively. Independent of other factors in the final model, higher monthly family income (AOR=3.22, 95% CI (1.47, 7.07)), parity of three or more (AOR=2.36, 95% CI (1.12, 4.98)), macrosomia (AOR=4.42, 95% CI (1.31, 14.90)), previous CS delivery (AOR=55.15, 95% CI (19.23, 158.12)), ultrasonography (AOR=2.50, 95% CI (1.25, 4.99)), and private hospital delivery (AOR=2.05, 95% CI (1.01, 4.15)) were positively and significantly associated with cesarean section delivery.

Conclusion: measures like interventions on prevention of unnecessary primary cesarean section to avoid repeat cesarean section, advocating vaginal delivery, and health education for pregnant mothers on the risk of unnecessary cesarean section during antenatal care visits were recommended to halt the rising cesarean section and associated risks.
Factors Associated with Late Initiation of Antenatal Care Among Pregnant Women Attending Antenatal Clinic at Public Health Centers in Kambeta Timbaro Zone, South Nation Nationalities People Region, Ethiopia.

Tesfaldet Tekelab, MSc, Wollega University; Balcha Berhanu, MSc

Background: For all women of reproductive age, especially for pregnant women, utilization of health care services is a key proximate determinant of maternal and infant outcomes, including maternal and infant mortality. It is evident that timely antenatal care is an opportunity to prevent the direct causes of maternal mortalities and reduction of fetal and neonatal deaths related to obstetric complications. The purpose of this study was to identify those factors associated with late initiation of antenatal care among pregnant women attending antenatal clinics in public health centers in Kembata Timbaro Zone.

Method: A facility based cross-sectional study with supplement of qualitative data was carried out to collect data from 401 pregnant women who were attending antenatal care service at five randomly selected governmental health centers in Kembata Timbaro zone from March 10 to May 8, 2012. Pretested and structured questionnaire was used to collect the data & data were entered onto a computer using Epi-info 3.5.1 statistical program then exported to SPSS Windows version 16.0 for further analysis. Binary descriptive statistics and multiple variable regressions were done.

Results: This study showed that prevalence of late entry to antenatal care was 68.6%. The mean timing was 5.5 ± 1.8 months. Multivariate analysis revealed that Age, maternal education, family income, parity, previous utilization of antenatal care and type of pregnancy remained significant factors influencing late booking.

Conclusion: The findings of this study showed that most women book antenatal care late. This seems to be because antenatal care is viewed primarily as curative rather than preventive in the study population. Public enlightenment, health education coupled with women empowerment would be helpful in reducing the problem. In addition to that research is needed to determine the best approaches for health education programs to correct the misconceptions about antenatal care.

Keywords: Antenatal care, late initiation, early initiation.
Assessment of Birth Outcome; a Facility Based Case Control Study. Fantu Abebe (MPH), Jhpiego Amhara Regional Office, Education and Training Officer for the HRH project, B/Dar; Ashbier Kidane (MPH); Gizachew Eyassu (MPH)

Background: Following continuous advocacy and community mobilization, countless pregnant women have begun utilizing skilled obstetric and newborn care services in Ethiopia, perhaps in Amhara region. The concern however is, whether the services being provided are making actual improvements vis-à-vis maternal and newborn outcomes.

Objective: This study has aimed to compare birth outcomes between newborns delivered vaginally and those delivered by cesarean section.

Methods: A facility based case control study was conducted to explore both maternal and neonatal outcome of all births conducted from July 1st 2012 to June 31st 2013 in Felegehiwot referral hospital, Bahir Dar-Ethiopia. A total of 3003 completed patient charts were reviewed using structured data extraction instrument. A total of 760 cases (delivered by Cesarean Section) and 2243 controls (delivered vaginally) were identified and enrolled for the study. Independent sample t-test was used for comparison between means and chi-square square for comparison between percentages. Significance was taken at P<0.05 and 95% CI.

Result: The mean age of newborns in this study was 38.2 weeks with a SD of 2.6 weeks and 467 (17.7%) of the fetuses were born preterm. About 350 (12.8%) newborns had a birth weight less than 2500grams. A total of 324 (10.8%) newborns were declared dead the moment they get delivered or few minutes later. Of these total perinatal deaths, 311 (128 freshly dead) newborns were stillborn and 13 newborns were died right after birth due to birth asphyxia and complications related to prematurity. A total of 13 mothers were also died during labor, delivery and immediate postnatal period in the reference hospital. A statistically significant APGAR score difference was observed between children born through vaginal route and cesarean section delivery. Children born in the emergency caesarean section (M=6.83, SD=1.31) had a lower APGAR score than in vaginal delivery group (M=7.19, SD=1.18), P value=0.001. The observed respiratory distress syndrome was more (18.1%) in neonates delivered by cesarean section than in vaginally delivered (16.9%) group. Neonatal transfer rate to intensive care unit was also more (31%) in neonates delivered by Cesarean section than vaginal delivery group (29%).

Conclusion: The number of perinatal and maternal deaths in the hospital is significant. Use of Cesarean Section (CS) does also confer safety and quality of obstetric care as neonatal morbidity appears to be more in cesarean section than in vaginal delivery. Provision of quality care is all that matter to tremendously reduce maternal and newborn mortality in the health facilities.

Keywords: APGAR score, perinatal mortality, maternal mortality, cesarean section, vaginal delivery
Assessment of Knowledge of Obstetric Danger Signs During Pregnancy Among Mothers in Debre Birhan City Administration, North Shoa, Amhara Region, Ethiopia. Sodere Nargi, Debre Berhan University

Background: Pregnancy complications are the major health problems among women in developing countries. Knowing obstetric danger signs can help prevent a miscarriage, stillbirth, or harm to the mother or the fetus.

Objective: To assess Knowledge of obstetric danger signs during pregnancy among mothers in Debre Birhan City Administration April, 2014.

Methods: A community based cross-sectional quantitative study was conducted between March and April, 2014, on a sample of 634 mothers who were at least 4 months pregnant for primi gravid and delivered in the past 24 months selected from, 4 urban and 2 rural Kebeles of Debre Birhan city Administration. Multistage sampling technique was employed to select the study participants. Data was collected using interviewer administered questionnaire. Multiple logistic-regressions were used to adjust for possible confounding variables.

Results: A total of 634 mothers were enrolled in the study giving a response rate of 99.7%. Most 431 (68.2%) of the study participants were found to have poor knowledge.386(61.1%) mentioned severe vaginal bleeding and foul smelling vaginal discharge was mentioned by the least 19(3.0%) of the respondents. Residence area [AOR=2.24, 95%CI (1.11-4.52) and sources of information such as media [AOR=2.8, 95% CI (1.7-4.65)], health personnel [AOR=2.9, 95CI (1.32-6.43)] and friends [AOR=2.1, 95CI (1.21-3.569)] were significantly associated with knowledge of obstetric danger signs during pregnancy.

Conclusion: This study indicated that the knowledge of mothers about obstetric danger signs during pregnancy was poor and affected by ANC follow up, monthly income, occupation, residence area and sources of information. MOH and concerned bodies have to provide materials like pamphlets, posters, magazines and books that help women, families and communities increase their knowledge about obstetric danger signs was recommended.

Key words: Danger sign, Knowledge, Pregnancy, Obstetric care
Knowledge about Direct Obstetric Causes of Maternal Mortality and Associated Factors among Reproductive Age Women in Aneded District, Amhara Regional State, Northwest Ethiopia, 2014. Fikreasllassie Getachew, BSc in PH, MPH, Ethiopian Public Health Institute; Mulatu Ayana, PH, MPH; Getachew Mulu, BSc, MSc; Endawoke Amsalu, BSc, MPH

**Background:** In Ethiopia, 20,000 women die each year from complications related to pregnancy and child birth with much more maternal morbidity occurring for each maternal death; it makes the highest in the world. Increase knowledge of women leads to reduce maternal mortality related to direct obstetric causes.

**Objective:** To assess knowledge of direct obstetric causes of maternal mortality and associated factors among reproductive age of women in Aneded worda, East Gojam zone, Amhara regional State, Northwest Ethiopia, 2014.

**Methodology:** A community based cross-sectional study was conducted 8 March to 4 April 2014 using multi stage sampling followed by simple random sampling technique to sample 844 study participants of reproductive age women in Aneded district. Data was collected from 8 March 2014 to 4 April 2014. Pre-tested semi-structured questionnaire was used to collect the data. Data was collected through face-to-face interviews by 12 malaria surveillance workers and data was cleaned, coded and entered into Epi data then exported and analyzed using SPSS version 20.

**Result:** This study found that good knowledge level of obstetric causes of maternal mortality were (49.6%).significant variables were: occupation type in which government workers (AOR=3.6, 95%CI (1.4-8.9)), respondents who had additional monthly income AOR=1.54, 95%CI (1.04-2.27), from family members of the respondents who attended primary school and aboveAOR=1.6, 95%CI (1.13-2.249) distance of health facility in which the time it took less than 20 minutes AOR=2.25, 95%CI (1.24-4.09), 20-39 minutes AOR=3.06, 95%CI (1.66-5.64), 40-60 minutes AOR=2.38, 95%CI (1.52-5.26). Respondents who had previous history of prolonged labor with AOR=1.49 (1.04 -2.03) were the most significant variables.

**Conclusion:** This study indicated that the good knowledge level of reproductive age women about obstetric causes of maternal mortality was low (49.6%). Therefore, the identified factors that affect knowledge should be addressed through maternal and child health services by designing an appropriate strategies including provision of targeted information, education and communication.
Assessment of Maternal Near Miss at Debre Markos Referral Hospital, North West Ethiopia: Five years Experience. Habtamu Gebrhan; Ayu Gizachew; Dr. Molla Gedew

**Background:** Maternal mortality in Ethiopia is one of the highest in the world. Update on maternal near miss and events among mothers who received care at health institutions is lacking. The main aim of this study was, therefore, to assess the prevalence, trend and correlates of maternal near miss at a referral hospital.

**Methods:** Case notes of clients who received care in obstetric and gynecologic ward of Debre Markos Referral Hospital from 1st January 2008 to 30th December 2012 were reviewed. Case notes were selected using systematic random sampling technique. Tailored structured format was prepared to collect relevant data from patients’ case note. SPSS version 16 was used to analyze the data. Logistic regression was fitted to determine possible association among variables. Strength of associations was measured using odds ratio at 95% confidence interval.

**Result:** A total of 1355 case notes were reviewed. Of them, 403(29.7%) were near miss cases. The data showed that maternal near miss ratio over the study period (2008-2012) was decreasing ($X^2=7.4, p=0.007$). Distance from the hospital, and history of difficult labor were found to be major determinates of maternal near miss. The most common types of near miss events were obstructed labor and hemorrhage.

**Conclusion:** Maternal near miss ratio and hemorrhage appear to decrease over the last five years period. This may reflect success of the government’s Endeavour to decrease maternal mortality. However, this effort needs to continue in a sustainable manner to avoid preventable causes of maternal mortality in Ethiopia.

**Keywords:** Maternal near miss, maternal near miss events, maternal death.
Factors Associated with Institutional Delivery Service Utilization Among Mothers In Bahir Dar City Administration, Amhara Region: A Community Based Cross Sectional Study. Gedefaw Abebe Fekadu, MPH/RH, Bahir Dar University; Muluken Azege Yenesew, MPH; Tesfaye Setegn, MPH/RH

Background: High maternal mortality is a continued challenge for the achievement of the fifth millennium development goal in Sub-Saharan African countries including Ethiopia. Although institutional delivery service utilization ensures safe birth and a key to reduce maternal mortality, interventions at the community and/or institutions were unsatisfactorily reduced maternal mortality. Institutional delivery service utilization is affected by the interaction of personal, socio-cultural, behavioral and institutional factors. Therefore this study was designed to assess factors associated with institutional delivery service use among mothers in Bahir Dar city administration.

Methods: A community based cross sectional study was conducted in Bahir Dar City administration Northwest of Addis Ababa, Ethiopia. Four hundred eighty four mothers were included in the study. Data were collected by trained female data collectors. Descriptive statistics, binary and multivariable logistic regression analyses were computed. Statistical significance was considered at $p < 0.05$ and the strength of statistical association was assessed by odds ratios (OR) with 95% confidence intervals.

Result: In this study, 78.8% of women gave birth to their current child at health institution. The multivariable logistic regression showed that, attending primary education (AOR = 4.7[95% CI:1.3-16.7]), secondary education (AOR = 3.5[95% CI:1.1-10.7]), age at first marriage, first time marriage at 15–19 years (AOR = 5.4[95% CI:2.0-15.0]) and first time marriage at 20–24 years (AOR = 5.0[95% CI:1.5-16.8]) and gestational age at first ANC visit (first trimester) (AOR = 5.3[1.3-22.2]) and second trimester (AOR = 2.8[95% CI:0.7-11.1]) were independent factors affecting institutional delivery service utilization.

Conclusion: In this study, institutional delivery service utilization is optimal, urban mothers were more likely to practice institutional delivery. This study indicated that age at first marriage, educational status of the women and gestational age at first ANC visit are independent predictors of delivery service utilization. Hence, intensifying education for women and behavior change communication (BCC) interventions to increase early initiation and up-take of ANC service use in the first trimester and delaying marriage are recommended to promote institutional delivery service utilization.
Mental Health & Substance Use

Khat Chewing Practice and Associated Factors among Adult Population in Ethiopia Using Population Based Cross-Sectional Data. Demewoz Haile*, Yihunie Lakew† "Department of Public Health, College of Medicine and Health Sciences, Mekelle University, Ethiopia 2Ethiopian Public Health Association, Addis Ababa, Ethiopia

Background: Khat chewing has become a highly prevalent practice and a growing public health concern in Ethiopia. Although there have been many small scale studies, very limited national information has been available for the general community. Therefore, this study aimed to identify factors associated with khat chewing practices among Ethiopian adult population.

Methods: The 2011 Ethiopian demographic and health survey, cross-sectional secondary data, was used for the analysis. Binary and multivariable logistic regression models were employed to quantify associated factors.

Results: The overall prevalence of khat chewing was 15.3% (95% confidence interval (CI): 14.90-15.71). Regional variation was observed, with the highest in Harari region (53.2% (95%CI: 43.04-63.28)) and lowest in Tigray ([1.1 % (95%CI: 0.72-1.66)]. Muslims were 29.8 times to chew khat as compared to Orthodox followers [Adjusted Odd Ratio (AOR)=29.8 (95%CI: 26.68-33.21)]. Adults in the age group 45-49 years were 4 times to chew khat as compared to 15-19 years [AOR=3.7 (95%CI: 2.93-4.60)]. The rich [AOR=1.4 (95%CI: 1.18-1.55)] and richest [AOR=1.8 (95%CI: 1.48-2.19)] wealth quintile were more likely to chew khat as compared to the poorest category. Rural residents [AOR=1.8 (95%CI: 1.49-2.14)] had more risk of chewing khat than urban residents. Individuals who had attended higher education were more likely to chew khat as compared to those who had no formal education [AOR=1.6 (95%CI: 1.247-2.106)]. Females were 75% less likely to chew khat as compared to males [AOR=0.25 (95%CI: 0.24-0.28)]. Formerly married and those experienced in child death had 20% increased risk to chew khat as compared with those never married and never had child death, respectively.

Conclusion: Khat chewing is a public health concern in Ethiopia. The highest wealth index quintile, older age, rural residence, higher educational status, males and Muslims had statistically significant association with khat chewing. Due attention needs to be given for these factors in any intervention procedures.

Keyword: khat, adult population, Ethiopia
Acute Loss of Vision in a Young Woman: Case Report on Psychogenic Blindness. Sisay Mulugeta, Department of Midwifery, Debre Berhan University, Debre Birhan, Ethiopia; Kenfe Tesfay, Department of Psychiatry, Jimma University, Jimma, Ethiopia; Reiner Frank, Center International Health, Ludwig, Maximilians University, Munich, Germany; Christine Gruber-Frank: chr.gruber, Center International Health, Ludwig-Maximilians University, Munich, Germany

Background: Acute loss of vision needs urgent attention and treatment. We report on a young Ethiopian woman who experienced acute bilateral blindness. In the presence of normal ophthalmological findings psychogenic blindness has to be considered. Case details:

A 21 year old woman was admitted to the psychiatry clinic at Jimma University specialized Hospital, Jimma, South West Ethiopia. She had not been able to see for a few days. Ophthalmological and neurological examinations were normal. No severe psychopathology was found. Stressful life events have preceded the appearance of the symptoms. An attitude of accepting the perspective of the patient of a seemingly organic disease is a precondition for a successful intervention. Treatment aimed at a gradual return to normal functioning. The patient regained her sight and fully recovered. She was discharged from the hospital after 3 weeks, when she was able to see normally. The final psychiatric diagnosis was psychogenic blindness, one category of conversion disorders where severe emotional problems are expressed by somatic symptoms.

Conclusion: The psychosocial intervention was successful and encouraging for the patient and clinicians.
Gender Disparity in Prevalence of Depression among Patient Population: A Systematic Review. Kalkidan hassen Abate (BSc, MSc, PhD Fellow), Assistant professor, Department of population and family health, CPHMS, Jimma University.

Many people are unable to withstand the set point for usual vicissitudes of life and are overwhelmed by depression, especially when there is a potential stressor like a disease. Gender is very important in defining susceptibility and exposure to a number of mental health risks. The objective of this review is to systematically identify, appraise and synthesize the best available evidence on gender disparity in prevalence of depression among patient populations.

A total of 31 Observational and analytical studies done on patients of 18 years old and above were included. The JBI-MAStARI tool for extraction was used to pool quantitative data. Review Manager Software was used for meta-analysis and Odds ratios and their 95% confidence intervals were calculated.

On Meta-analysis, a total of 19639 patients were involved, with male to female ratio of 1.14:1. The finding of the Meta analysis showed that male sex is 63% less likely to develop depression than female sex (Odds ratio=0.63, 95% Confidence Interval= 0.59, 0.68). The studies included were homogenous; Heterogeneity test: Chi(2) = 309.23, df = 30, (P < 0.00001). In conclusion, Depression is more common among females than male patients, and the finding of the review provides an empirical evidence for the need to develop gender sensitive health care.

Keywords: Gender disparity; depression; systematic review
Khat Chewing and Mental Distress: A Community Based Study, in Jimma Town, South Western Ethiopia. Tekalign Damena, Addis Ababa University, College of Health Sciences School of Medicine Department of Anatomy & Physiology; Andualem Mossie, PhD; Markos Tefaye, MD

**Background:** Khat (*Catha edulis*) contains a psychoactive substance, cathinone, which produces central nervous system stimulation analogous to amphetamine. It is widely used and highly praised in East Africa, including Ethiopia, and the Arabian Peninsula for its euphoric effect. It is believed that khat chewing has a negative impact on the physical and mental health of individuals as well as the socioeconomic condition of the family and the society at large. There are only a few studies done in Ethiopia on the association between khat chewing and mental distress.

**Objective:** The main aim of this study is to investigate the prevalence of mental distress and khat chewing and to determine the association between khat chewing and mental distress in Jimma town.

**Methods:** A cross-sectional community-based study was conducted in Jimma town from October 15 to November 15, 2009. The study used a structured questionnaire and SRQ-20 designed by WHO and which has been translated into Amharic and validated in Ethiopia. By multi-stage sampling, 1200 individuals were included in the study.

**Data analysis:** Data analysis was done using SPSS version for window 13. Frequency tables were used for data presentation and Chi-square test was used for comparing different groups.

**Results:** The prevalence of khat chewing was 37.8%. Among khat chewers significantly high number of males (73.5%), age group 18-24 (41.1%), Muslims (46.6%), Oromo (47.2%), single (51.4%), high school students (46.8%) and employed (80%) were khat chewers. Using cut-off point 7 out of SRQ-20, 25.8% of the study population had mental distress. High number of male (26.6%), age group >55 (36.4%), Orthodox (28.4%), Kefticho (36.4%), widowed (44.8%), illiterate (43.8%) and farmer (40.0%) had mental distress. Among the mentally distressed persons, 34.7% were khat chewers, 41% daily chewers and 39.1% chewed for six months.

**Conclusion:** Based on the result, it is possible to generalize that mental distress and khat chewing have a highly significant association (P<0.001). Furthermore, there was significant association (P<0.001) between mental distress and frequency and duration of khat chewing.

**Keywords:** Khat chewing, mental distress, mental illness, Self reporting questionnaire
Prevalence and Associated Factors of Mental Distress during Pregnancy among Antenatal Care Attendees at Saint Paul's Hospital, Addis Ababa.

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Background: Mental distress during pregnancy is significant because it has adverse impact on the outcome of pregnancy and is associated with postpartum depression. The studies done on mental distress during pregnancy in Ethiopia are very few and are done mainly in postpartum settings.

Objective: The main objective of the study was to determine the prevalence and factors associated with mental distress during pregnancy among ANC attendees at Saint Paul’s Hospital.

Methods: A facility based cross sectional study was conducted between December 2012 and March 2013 at the Saint Paul’s Hospital ANC clinic. An exit interview of pregnant women in their third trimester coming for ANC to SPH was done using a structured questionnaire to assess the socio demographic and obstetric characteristics. Self-reported Questionnaire (SRQ-20) was used to measure mental distress.

Results: A total of 753 pregnant women were included in the study. The prevalence mental distress (SRQ-20 score ≥ 6) was found to be high, 26.2 % (95% CI 23.04-29.36). Women who were told to have obstetric problems during the current pregnancy had a significantly higher mental distress than those who were not told of any problem [AOR=1.941(1.146-3.287)]. Women with unplanned pregnancy had a significantly higher mental distress than those who have a planned pregnancy [AOR=3.595(2.330-5.546)]. Psychiatric illness in the past has also a strong association with the presence of significant mental distress (AOR 95%CI) =4.482(1.614-12.449).

Conclusion and recommendations: This study revealed that one in four pregnant women have mental distress. Primary health care workers responsible for ANC must be trained about the relevance and detection of mental distress during pregnancy. Proper counseling and emotional support should be given for women exhibiting the risk factors.
Prevalence of Tobacco Use and Associated Factors Among the Adult Population in Ethiopia Using National Population Based Cross-Sectional Survey Data. Yihunie Lakew, MS, Program Coordinator at EPHA, Addis Ababa; Demewoz Haile, MPH

Background: Tobacco use is considered to be a leading preventable cause of non-communicable diseases. Factors associated with tobacco use have not yet been well explored in the general population. This study aimed to generate information for policy and program inputs on the magnitude and factors associated with tobacco use among the Ethiopian adult population.

Methods: The 2011 Ethiopian demographic and health survey of cross-sectional secondary data was used for the analysis. A composite score of all available items of tobacco use was constructed. Binary and multivariable logistic regression statistical models were employed to identify factors associated with tobacco use.

Results: The prevalence of tobacco use in the general population was 4.1% (95% CI: 3.93-4.37). The most common type of tobacco use was smoking [3.1% (95% CI: 2.91-3.30)]. There was significant regional variation, with the highest reported in Gambella region [16.9% (11.02-23.76)] and the lowest in Tigray region [0.8% (0.48-1.29)]. The poor 31% [Adjusted Odd Ratio (AOR)=0.69; 95%CI:(0.56-0.85)], middle 40% [AOR=0.60; 95%CI:(0.49-0.74)] and rich wealth quintile 43%[AOR=0.57; 95%CI:(0.46-0.70)] were less likely to use tobacco as compared to the poorest group. Adults in the age group 45-49 years were [AOR=7.4 times; 95% CI: (5.0-10.93)] more likely to use tobacco as compared to the age group 15-19 years. Catholic and traditional religion followers were [AOR=6.5 times; 95%CI: (4.978-8.372)] more likely to use tobacco while Muslim religion were [AOR=4.4 times 95%CI: (3.769-5.174)] at higher risk to use tobacco as compared to Orthodox religion followers. The risk of tobacco use among females was 91% lower as compared to males [AOR=0.09; 95%CI: (0.074-0.118)]. Formerly married individuals were at 70% higher risk for tobacco use as compared to never married individuals [AOR=1.7; 95%CI:(1.190-2.358)]. Education, residence and exposure to mass media had no statistically significant association with tobacco use.

Conclusion: The overall prevalence of tobacco use seems low in Ethiopia. However, a significant regional variation of tobacco use was observed. The poor, middle and rich wealth quintiles, older age group, non-paid occupation, child death experience, Muslim, Catholic and traditional religion followers, male, and being formerly married were statistically associated factors for tobacco use. These factors are recommended for attention in any tobacco targeted public health interventions.
Psychological Distress among Adolescent Orphans in South Gondar. Accent, MPH, NGO (Food for the Hungry Ethiopia); Seblewengel Lema, PhD

Background: The number of orphans is increasing alarmingly in Sub Saharan Africa including Ethiopia. The psychological health of these children becomes serious concern as they lose their parents as they have no adult protection and love.

Objective: To assess the prevalence of psychological distress among the adolescent orphans and associated factors in south Gondar Zone, Amhara National regional state, Ethiopia.

Methodology: Cross-sectional study design was used. In this study 396 randomly selected adolescents age 11-19 were accompanied as study participants. Self-administered Amharic version questionnaire and scales such as MPSS and HADS to measure the level perceived social support, level of anxiety, and depression consecutively were used. The data was analyzed using SPSS version 20. Perceived social support was measured using multidimensional scale of perceived social support (MSPSS) and the significance level of the variables were analyzed using and logistic regression.

Result: A total of 396 adolescent orphans were interviewed. Hence the participants that revealed the symptoms of Anxiety and depression which 48.5% (192) and 55.1% (218) consecutively of the study participants prior to the study week. Age 17-19 was significantly associated with both symptoms of Depression AOR=2.80(1.17-6.71) and Anxiety AOR = 2.34(1.00-5.10). The odds of symptoms of depression has shown reduction when the social support score increase from first quartile to fourth AOR=6.02(3.10-11.70), AOR=3.40(3.10-11.70) and AOR=1.85(1.00-3.45). Similarly, the odds of symptoms of anxiety was also reduced with increasing social support score AOR= AOR=2.61(1.37-4.97) and AOR=0.80(0.42-1.51). Moreover, educational status was also associated with symptoms of anxiety but not with depression.

Conclusion: A large proportion of the adolescent orphans are having psychological distress such as symptoms of depression and Anxiety that can affect the overall situation of their current and future life. They will poorly communicate with the community, they may take bad action on themselves and the other party as revenge and involve in crimes and related situations if appropriate care is not give. So much attention has to be given for adolescent orphans by the community and strengthen perceived social support.
Mental Illness and Associated Factors among Holy Water Users at Entoto St. Mary Church, Addis Ababa, Ethiopia, 2014. Wubalem Fekadu1, Haregwoin Mulu2, Kibrom Haile3, Tesfia Mekonen1 1College of Health sciences and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia 2Psychiatry Department, College of Health sciences and Medicine, University of Gondar, Gondar, Ethiopia 3Amareul Mental Specialized Hospital, Addis Ababa, Ethiopia

Introduction: Mental illness is a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with present distress or disability with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom.

Objective: The aim of the study was to assess magnitude and associated factors of mental illness among holy water users at Entoto St. Mary Church, Addis Ababa, Ethiopia, 2014.

Method: Institutional based Cross sectional study design supplemented with qualitative enquiry was conducted from April 28-May 28, 2014 at Entoto St. Mary church holy water. A total of 416 holy water users were included in the study. Three FGD and five in-depth interviews were held about mental illness perception. The participants were selected using systematic random sampling method. Data were collected by face-to-face interviews using structured questionnaire for socio demographic factors, substance related factors, interview and observation by Brief Psychiatric Rating Scale (BPRS) for mental illness symptoms and clinical factors were collected using structured questionnaires. Interview guideline for in-depth interview and discussion guideline were used for FGD.

Result: A total of 416 participants were interviewed and observed with a response rate of 98.35%. 60.1% of the holy water users had mental illness with 95% CI, (54.34, 65.86). Being jobless [AOR=2.42, 95% CI (1.37, 4.28)], ever use of more than one substance [AOR= 2.4, 95% CI (1.39, 4.17)], current daily drinking of alcohol [AOR=5.08, 95% CI (2.08, 12.2)], previous history of mental illness [AOR= 5.82, 95% CI (2.732, 12.378)] and having a known medical or surgical problem [AOR= 2.46, 95% CI (1.39, 4.34)] were significantly associated with mental illness. Focus Group Discussion results revealed that mental illness results from bad spirit, possession, life stressors and perceived treatment place is religious places like holy water. Regarding results of in-depth interview religious leaders revealed that mental illness results from bad spirit and the treatment place is religious places.

Conclusion: Mental illness was found high among holy water users. Being jobless, ever use of more than one substance, current daily drinking of alcohol, having previous history of mental illness and having a known medical or surgical problem were significantly associated.

Keywords: Mental illness, holy water users, Ethiopia
Common Mental Disorder and Associated Factors among HIV infected individuals at ART Clinic of Debre Markos Referral Hospital, Ethiopia.

Selamawit Zewdu Sahilih, MSc; Lecturer and researcher, Debre Markos University; Nurilign Abebe Mosse, MPH

Background: The presence of HIV/AIDS increases the risk of development of mental disorders and the presence mental illness affects disease progression. The resulting co-morbidity complicates help-seeking, diagnosis, quality of care provided, treatment and its outcomes, and adherence. Despite the fact that developing countries carry huge burden of both HIV/AIDS and mental illness, few data about the co-occurrence and factors associated is available in local setting.

Objective: The objective of this study was to assess the prevalence of CMD and factors associated among PLHA at DebreMarkos referral Hospital in 2013/2014.

Method: A institution-based cross sectional study was conducted. A total of 412 patients selected by systematic sampling were interviewed with the Amharic version of the SRQ. Ethical clearance was obtained from Institutional Review Board of DebreMarkos University. Informed consent was obtained from participants to ensuring privacy and confidentiality throughout the data collection process. The collected data were coded, entered and analyzed using EPI data and SPSS version 16 software packages. The association between variables was analyzed using logistic regression.

Result: A total of 412 PLHA were participated, yielding a response rate of 95.1%. Mean age was 37.9 years ± 10.05 years. Prevalence of common mental disorder was 24.3%. Significant associations were found between CMD and past psychiatric illness, ART regimen, marital status, HIV/AIDS disclosure and perceived stigma.

Conclusion: There was a significant burden of CMD among HIV-infected individuals in this setting. It is important to strengthen the link between HIV care and treatment services and psychiatric service. Hospital administrators should give better attention to inpatient mental health service including substance abuse treatment. Clinicians should always assess HIV-infected subjects for depression, anxiety and other common mental disorders to ensure early detection and treatment.
Self and Public Stigma and Discrimination against People with Mental Illness and their Family. Estetu Girma, PhD, Department of Health Education and Behavioral Sciences, Jimma University, Jimma, Ethiopia; Markos Tesfaye, MD, Department of Psychiatry, Jimma University, Jimma, Ethiopia; Guenter Froeschl, MD, CIH, Center for International Health, Ludwig-Maximilians-Universität, Munich, Germany and Department of Infectious Diseases and Tropical Medicine, Ludwig-Maximilians-Universität, Munich, Germany; Anne Maria Müller-Leimkühler (PhD), Norbert Müller (MD) and Sandra Dehning (MD) (Department of Psychiatry and Psychotherapy, Ludwig-Maximilians-Universität, Munich, Germany)

Background: Stigma can be detrimental to the quality of life, as well as the treatment and rehabilitation process of people with mental illness. The purpose of this study was to measure the extent and determine correlates of public and self-stigma against people with mental illness (PWMI) and their families in Jimma Zone, Southwest Ethiopia.

Methods: Community and institution based quantitative and qualitative cross-sectional studies were conducted among 845 randomly selected community members at GGFRC, consecutive 422 PWMI and 422 family members of PWMI at Jimma University Specialized Hospital. Univariate, bivariate and multivariate linear regression analyses were done.

Results: High public stigma against PWMI and high levels of patients' self-stigma were found. Care-givers demonstrated reluctance to be identified with PWMI. Place of residence, belief in the supernatural, psychosocial and biological explanations of mental illness were associated with stigma towards PWMI and family members of PWMI. Level of education and income predicted PWMI public stigma. A higher number of perceived signs of mental illness was correlated with lower stigma against family members of PWMI. Females, individuals with history of traditional treatment, individuals experiencing higher number of drug side-effects, and individuals who subscribed to more signs and supernatural explanations had significantly higher levels of self-stigma. In contrast, patients with higher education level and higher self-esteem showed significantly lower levels of self-stigma. Supporting supernatural explanations of mental illness was associated with greater care-givers' self-stigmatization.

Conclusion: Systematic forms of discrimination against PWMI and their family members were identified. PWMI and their family members faced behavioral and structural challenges. Thus, reducing stigma against patients may help to reduce stigma against family members. Developing strategies to improve patients' self esteem, and developing policies and guidelines about mental illness may be helpful in reducing stigma. Intervention strategies that target patients, their families, as well as the public need to be designed to reduce stigma.

Keywords: mental illness, stigma, public stigma, self-stigma, internalized stigma, attitude
Cognitive Impairment and Factors Associated with it among People Living With HIV in Jimma, Southwest Ethiopia: A Hospital Based Cross-Sectional Study. Sisay Melegeta, Department of Midwifery, Debre Berhan University; Markos Tesfaye, Department of Psychiatry, Jimma University, Charlotte Hanlon, Department of Psychiatry, School of Medicine, Addis Ababa University and Centre for Global Mental Health, Health Services and Population Research Department, King’s College London; Garumma Tolu Feyissa, Department of Health Education and Behavioral Science, Jimma University

Background: HIV associated neurocognitive disorders (HAND) is one of the most common neurological complications especially in resource limited settings like Africa. HANDs are associated with a very high cost in terms of loss of functional ability.

Objective: To estimate the magnitude cognitive impairment and factors associated with it among people living with HIV (PLWHIV) in Jimma University Specialized Hospital.

Methods: A cross sectional study was conducted in the HIV clinic of Jimma University specialized hospital between September and October, 2012. Four hundred one consecutive adults out patients on HIV follow up were included in the study. Data on patient socio-demography, depression, disease related information and substance use were collected using a pre-tested structured questionnaire through interview and from patient medical records. International HIV Dementia Scale (IHDS) was used to evaluate participants for the presence of significant cognitive impairment (HANDs). Data were analyzed using Statistical Package for Social Sciences for windows 20th version and descriptive, simple and multiple linear regression statistical methods were used. P value of less than 0.05 was considered significant.

Result: Applying the internationally recognized cut-off point of 11 or more, the prevalence of possible HAND was found to be 94.1%. Illiterate educational status, age of the patient, being female, increased Kessler 6 scale score of the patient and being merchant, were found to be associated with HAND. The final model of this study shows that keeping other variables in the model constant, as age of the patient increase by one year, IHDS score will decrease by 0.03 (0.01- 0.06); as Kessler 6 scale score increase by one score, the IHDS score of the patient will decrease by 0.05 (0.01- 0.09); On the other side, males have 0.54 (0.05- 1.14) more IHDS score compared to females and illiterates have 0.66 (0.02- 1.30) less IHDS score than those patients with primary education.

Conclusion: The prevalence of possible HANDs was high. Hospitals like JUSH should screen all PLWHIV for HAND and those who have been found to have HAND should be managed for HAND in addition to the HIV. Future studies should establish normative standards for the IHDS.
Prevalence of Alcohol Use Disorders and Associated Factors among People with Epilepsy at Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia, 2014. Zegye Yohannis, Ph.D-Candidate, Tesgereda Waja, MSc, University of Gondar and Amanuel Mental Specialized Hospital, Ethiopia.

Background: Heavy alcohol consumption have multiple negative consequences for people with epilepsy such as precipitates seizure, exacerbates seizure, leads to poor seizure control, more antiepileptic drug side effects, noncompliance to antiepileptic drugs, alcohol withdrawal seizure, long term hospital admission, status epilepticus, sudden unexpected death and premature mortality.

Objectives: To assess the prevalence and associated factors of alcohol use disorder among people with Epilepsy at Amanuel mental specialized hospital, Addis Ababa, Ethiopia

Methods: Institution based cross sectional study was done from April 15 to May 15, 2014. A total of 423 people with epilepsy age 18 years and above were recruited in the study. Data was collected by face to face interview using 10 item AUDIT questionnaire. Multivariate logistic regression analysis was done and P- Value < 0.05 were considered as statistically significant association.

Results: A total of 413 (97.6%) participants completely filled the questionnaire. The mean age of respondents was 31.9 (+SD 10.97) years. The mean duration of illness and treatment with antiepileptic drug were 9.91(+SD 6.94) years and 7.02(+SD 5.90) years respectively. Majority of patients 348 (84%) were took Phenobarbitone and 319 (77.2%) were took only one antiepileptic drug. The prevalence of alcohol use disorder was 72 (17.4%). Educational status, living conditions, taking Carbamazepine and drinking alcohol to relief from stress were statistically significant association with alcohol use disorder among people with epilepsy.

Conclusions: The prevalence of alcohol use disorder was high. Screening of epileptic patients with Alcohol Use Disorder Identification Test is recommended. Prospective studies are needed to investigate potential risk factors of alcohol use disorder among people with epilepsy.
Parents’ perception of child and adolescent mental health problems and their choice of treatment resort in southwest Ethiopia. Mubarek Ahera1; Markos Tesfaye1

Background: Child and adolescents are dependent on their parents or careers to recognize their symptoms, and seek services, for their mental health problems. Especially, in low and middle income countries where there is limited access for mental health service and mental health professionals, parental perception of child and adolescent mental health problems play a key role in determining service use. Furthermore, it is considered that parents’ perception and awareness about child and adolescent mental health problems is an important determinant of early detection and treatment seeking for the condition.

Objective: This study aimed at assessing the perception of parents about child and adolescent mental health problems and their preferred treatment resort.

Method: A cross-sectional study was conducted among 532 parents in Jimma City, Ethiopia from April to May 2013. Parents from the city were invited to participate to this study to assess their knowledge on causes, and manifestations of child and adolescent mental health problems as well as their preferred treatment resorts if their children got mental illness.

Result: Nearly three quarters of the parents mentioned genetic factors while approximately 20% of them mentioned neuro-chemical disturbance as possible biological causes of child and adolescent mental health problems. On the other hand, magic, curse, and sin were mentioned as causes of mental health problems by 93.2%, 81.8% and 73.9% of the parents, respectively. Externalizing behavioral symptoms like steal from home, school or elsewhere and internalizing symptoms like “nervous in new situations easily loses confidence” were perceived by 60.9 and 38.2% of the parents. The majority (92.7%) of parents agreed that they would seek treatment either from religious and spiritual healer if their children had developed mental illness.

Conclusions: The low level of awareness about internalizing symptoms, the widespread traditional explanatory models as well as preference for traditional treatment resorts might present significant challenge to utilization of child and adolescent mental health services in this population. Strategies that are effective in changing parental attitude regarding the cause and treatment for child and adolescent mental health problems need to be developed.

Keywords: perception, child, mental health, treatment seeking, ‘parental attitude’, ‘Ethiopia’, ‘traditional beliefs’
Non-Communicable Disease

Glycemic Control and treatment outcomes of Type II Diabetes mellitus patients on chronic follow-up in Harari region, Ethiopia. Dunessa Edessa¹, Brook Wakis¹, Fekede Asey²Department of Pharmacology and Clinical Pharmacy, School of Pharmacy, College of Health and Medical Sciences Haramaya University, P.O. Box 235, Harar, Ethiopia; ²Department of Public Health, College of Health and Medical Sciences, Haramaya University, P.O. Box 235, Harar, Ethiopia

Background: Diabetes Mellitus (DM) is a group of metabolic disorders that affect the body's ability to process and use glucose for energy. Although the importance of strict glycemic control in type 2 DM has been debated, poor control is never a desired outcome. Achieving good glycemic control remains a challenge in diabetic patients. Therefore, the aim of this study was to identify factors related to glycemic control and treatment outcome of type 2 DM patients at two Hospitals in Harari region.

Methods: A retrospective cohort study was conducted using relevant reports of 300 type 2 diabetic patients on chronic follow-up at Hiwot Fana and Jugol Hospitals. Data was abstracted from individual patient records at the clinics. The data was analyzed by using SPSS software, version 16.0. Logistic regression analyses were used adjusted for covariates to identify factors associated with poor glycemic control.

Results: In this study, out of 300 patients, only 78 (26%) attained goal fasting blood sugar (FBS <126 mg/dl). Predictors of poor treatment outcomes—new diagnosed cases of renal problems, visual problems and co-morbid diseases in the patients, respectively, were 18 (6%), 88 (29.3%), and 62 (20.7%). In addition, 64 (21.3%) of the patients changed their first drug therapy and treatment non-adherent patients (AOR=15.1; 95% CI 10.51, 31.25) and widowed patients (AOR =11.1; 95% CI 1.14, 23.32) had a highly increased likelihood of poor glycemic control. However, patients at secondary (AOR =0.19; 95% CI 0.08, 0.43) and tertiary (AOR =0.10; 95% CI 0.018, 0.58) levels of education had a reduced odds of poor glycemic control.

Conclusion: Factors significantly related to poor glycemic control were educational status, adherence status to therapy and marital status. Hence, appropriate education on good adherence to therapy and family support could benefit treatment outcomes of patients with type 2 DM.

Keywords: Type 2 Diabetes Mellitus, Glycemic control, treatment outcome, factors affecting glycemic control
Effects of Excessive Speeding and Falling Asleep While Driving on Crash Injury Severity in Ethiopia: A Generalized Ordered Logit Model Analysis.

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**Background:** The severity of injury from vehicle crash is a result of a complex interaction of factors related to drivers' behavior, vehicle characteristics, road geometric and environmental conditions. Knowing to what extent each factor contributes to the severity of an injury is very important. The objective of the study was to assess factors that contribute to crash injury severity in Ethiopia.

**Methods:** Data was collected from June 2012 to July 2013 on one of the main and busiest highway of Ethiopia, which extends from the capital Addis Ababa to Hawassa. During the study period a total of 819 road crashes was recorded and investigated by trained crash detectors. A generalized ordered logit/partial proportional odds model was used to examine factors that might influence the severity of crash injury.

**Results:** Model estimation result suggested that, alcohol use (Coef. = 0.5565; p-value = 0.017), falling asleep while driving (Coef. = 1.3102; p-value = 0.000), driving at night time in the absence of street light (Coef. = 0.3920; p-value = 0.033), rainfall (Coef. = 0.9164; p-value = 0.000) and being a minibus or vans (Coef. = 0.5065; p-value = 0.013) were found to be increased crash injury severity. On the other hand, speeding was identified to have varying coefficients for different injury levels, its highest effects on sever and fatal crashes.

**Conclusions:** In this study risky driving behaviors (speeding, alcohol use and sleep/fatigue) were a powerful predictor of crash injury severity. Therefore, better driver licensing and road safety awareness campaign complimented with strict police enforcement can play a pivotal role to improve road safety. Further effort needed as well to monitor speed control strategies like; using the radar control and physical speed restraint measures (i.e., rumble strips)
Hypertension and Associated Factors in Hosanna, Hadiya Zone, Southern Ethiopia: Community Based Cross-Sectional Study. Likawat Samuel, BSc; Samuel Yohanes, MPH; Fiseha Laemengo, MPH, Hosanna College of Health Sciences

Background: Blood Pressure is measure of force that circulating blood exerts on walls of major arteries. Hypertension is defined as presence of persistent elevation of blood pressure above the normal range. It is found to be the major public health challenge of the world. However, it is unrecognized and under researched in the study area.

Objective: To assess the prevalence and associated factors of hypertension in Hosanna, Hadiya zone, Southern Ethiopia, May 2014.

Methods and materials: Community based cross-sectional study design was used to conduct the study. Statistically determined and randomly selected 525 individuals of age ranges 25-64 years of either sex were included in this study. The global physical activity questionnaire (GPAQ) and World Health Organization (WHO) STEPS instruments were modified and used for data collection. Data was collected by interviewing and taking physical measurements such as blood pressure, weight, height, waist circumference. JNC7 and WHO cut-off points were used to classify hypertension, BMI and Waist circumference. EpI-Info version 3.5.2 and SPSS version 16.0 software programs were used to describe, explore, check assumptions and test associations [One sample t-test and ANOVA and binary logistic regression models used].

Result: Total of 525 subjects participated and data of all was valid and included in analysis. The mean age was 33.8 ± 11.4 (SD). Majority of participants 262(61.8%), 218(51.3%), 216(50.9%) were married, male and Hadiya respectively. Mean SBP and DBP was 118.36±13.42 mmHg, and 74.98 ± 11.18 mmHg. The prevalence of Hypertension was 30.1% and only 24.6% were aware of their hypertension status. Mean SBP significantly vary among subjects role in working organizations [P<0.001, 95% CI (3.0, 9.99)]. Married and subjects serve as head in their organizations were identified risk groups for hypertension [P<0.001]. Abdominal obesity is linearly associated with hypertension among women [P<0.001, 95% CI(2.07,6.62)], however, the association was not statistically significant among men.

Conclusion/Recommendation: High prevalence and low level of awareness for hypertension identified. Obesity is priority risk factor for hypertension among women. Head managers and married subjects were identified risk groups. Community based intervention strategies are recommended to consider issue of hypertension and identified factors.

Keywords: Hypertension, non-communicable diseases, cardio-vascular disorders
Prevalence and Associated Factors of Childhood Obesity in Hawassa City, South Ethiopia: A Double Burden of Disease. Tseke Woldo, MSc, Lecturer of Nutrition, Department of Public Health, Wollega University, Nekemte; Professor Tefera Belachew, PhD, Professor of Nutrition, Population and Family Health Department, College of Public Health and Medical Sciences, Jimma University, Jimma, Ethiopia

Background: Childhood obesity and its related adverse health effects have become major public health problems in developing countries. Increased risk for diabetes, dyslipidemia, coronary heart disease, atherosclerosis, and hypertension, high blood cholesterol concentration, stroke, certain cancers and arthritis have been reported to be associated with childhood obesity. The prevalence of childhood obesity and overweight and their predictors are not well documented in the developing countries, especially in Ethiopia.

Objective: The aim of this study was to assess the prevalence and predictors of obesity among preschool children in Hawassa City, Ethiopia.

Methods: A cross-sectional study was conducted in an urban locality called Hawassa City from February to March, 2012. Weight and height of the study children were measured and the dietary habits, physical activity and socio-demographic characteristics of the subjects were collected using a structured interview questionnaire. Logistic regression analyses were performed to identify predictors of obesity and overweight.

Results: Out of 358 participants, 50.6% were girls while 49.4% were boys with mean (±SD) age were 48.8±9 months. The combined prevalence of childhood obesity and overweight was 10.7%, the specific prevalence being 3.4% and 7.3% for obesity and overweight, respectively. Children living with higher socioeconomic status (SES) were significantly at risk for being overweight and obese as compared to children living with lower SES (AOR = 3.51 [95% CI: 1.30-9.50]).

Conclusions: Although the prevalence of overweight and obesity among preschool children in the study area were lower than some reported elsewhere, its increase with socioeconomic status and food consumption practices in the study area indicates that it is an emerging problem given the rapidly increasing urbanization and changes in lifestyles and dietary habits. Overweight/obesity was more common among children with wealthier parents, early introduction of formula feeding, who ate a wide diversity of foods, consumed sweets and fast foods. Nutrition education-phasing the need for healthy dietary practices need to be instituted using various strategies to curb the consequences this emerging double burden problem. Keywords: Associated factors, Childhood obesity, Hawassa, South Ethiopia
Prevalence of Road Traffic Accidents and Associated Factors among Minibus Drivers on the Highway from Debre Markos to Gondar Town, North West Ethiopia, January, 2014. Biruk Alebegn, BSC; Zewdu Dagnew, BSC, MPH; Mulatu Ayana, (BSC, MPH) Debre Markos University, college of medicine and health science, department of public health

Introduction: Road traffic accident killed millions of people throughout the world including Ethiopia. Prevalence of road traffic accidents and associated factors on the highway was not clearly known.

Objective: To assess the prevalence of road traffic accidents and associated factors on the highway.

Methods: Institution based cross-sectional study design was conducted from January 01, 2014 to January 30, 2014. Using single population proportion formula with correction a sample size of 279 minibus drivers were drawn. By proportionate allocation for Debre Markos 19, Bahir Dar 188 and Gondar 72 minibus drivers, at all places. Stratified random sampling method was utilized to select the participants. Data were cleaned and entered in to the computer and analyzed using SPSS version 16.0 software programs. Data were presented by frequency, table, diagram and associated factors were presented by odds ratio using bivariate and multivariate analysis. Ethical review was assured by ethical review committee of Debre Markos University College of medicine and health sciences before data collection.

Results: The prevalence of road traffic accident was 43.36%. The variables such as speed more than 100km/h, alcohol use duration more than five years and drivers didn’t checking their minibus body before going to somewhere were significantly associated with road traffic accidents (AOR=10.06, 95%CI, 1.44–70.00)(AOR=5.47, 95%CI, 1.09–27.50) and (AOR=4.66, 95%CI, 1.30–16.66) respectively. Not smoking cigarette before driving was preventable to road traffic accidents (AOR=0.08, 95%CI, 0.01–0.50).

Conclusion: Minibus car accident was high and the main risk factors for this study were speed, alcohol use duration and drivers didn’t checking their minibus body before going to somewhere. Therefore, appropriate measures should be taken on factors that contribute road traffic accidents on the highway.

Keywords: road, accident, highway
Assessment of Diabetic Patient Perception on Diabetic Disease and Self-Care Practice in Dilla University Referral Hospital, South Ethiopia, 2013/14. 

Akine Eskbe, MPH; Yohannes Adisu, MPH, Dilla University

**Background:** Diabetes mellitus is a worldwide growing serious health problem with high rate of morbidity and mortality in both developing and developed country with an increased need for health care and lifestyle adjustment. Self care of diabetes is essential for control of disease and improvement of quality of patients' life. Thus, before considering any possible intervention it was imperative to assess present knowledge, perception, and self care practices of patients towards the management of diabetes.

**Methods:** A facility based cross-sectional study supplemented by qualitative method was conducted from April – June 2013 in Dilla referral hospital. A total of 310 participants with Diabetes Mellitus were interviewed. Face-to-face interviews were used for quantitative data; and qualitative data were collected by in-depth interview. Data entered using EPI INFO version 3.5.1 and analyzed by SPSS version 20. Binary logistic regression was used for bivariate analysis and finally multiple logistic regression was used to identify factors associated with self care practice. Qualitative data were transcribed verbatim and finally interpreted in relation to the study questions.

**Result:** Self care practice among patients were calculated, accordingly, two third, 238 (76.8) of them had good practiced on the recommended self care practices. Among the recommended self care behaviors, drug adherence 289 (93.2%), dietary intake 154 (49.7%) and regular exercise 138 (44.5%) were the most practiced self care. Self blood glucose monitoring was the least practiced which accounted 62 (20%). Approximately 78% of diabetic patients were developed positive perception towards diabetes mellitus and has a significant effect for patients with diabetes to provide own self care practice [OR 2.74, 95% CI (1.27, 5.91)]. Majority 79.4% of the respondents were knowledgeable about diabetes, but those diabetic patients who were knowledgeable on diabetes were less likely performed recommended self care to manage the disease [OR 0.29, 95% CI (0.10, 0.80)]. On other hand those diabetic patients who were knowledgeable on diabetes self care were more likely performed recommended self care [OR 6.52, 95% CI (2.88, 14.78)]. A major point to address therefore is regular access to/contact with diabetic educators which currently is severely substandard.

**Conclusions:** Management of diabetes may be enhanced by reinforcing patients' knowledge, developing positive perception and encouraging behavior change whilst taking into consideration patients' backgrounds. To increase the self care behavior, the health care team should be utilizing and establish patient-centered approach in order to deliver diabetes messages on specific issues of management practice.
Knowledge and Practice on Prevention of Hypoglycemia and Associated Factors among Diabetic Patients at Health Institutions, South Gondar Zone-Northwest Ethiopia. Girma Nega (BSc, MSc); Getahun Asres (MD, MPH, DTM & H); Tadesse Awoke (MSC in Biostatistics, MSC in statistics)

**Background:** Hypoglycemia is an emergency life threatening condition for diabetic patients who take their medication. It is established fact proper hypoglycemia prevention rely on knowledge and self-care practice.

**Objective:** To assess knowledge and practice on prevention of Hypoglycemia and associated factors among diabetic patients

**Methods:** Institution based cross-sectional study was conducted. Four hundred sixteen Diabetic patients were involved in the Study. Pre-test was given for 5% diabetic patients who had follow up in one health center. Data was analyzed by using SPSS version 16 soft-ware. Descriptive statistics, frequency, proportions and charts were used to explore the data. Logistic regression was used and 95% CI and odds ratio were presented to identify associated factors and to assess the strength of the association. For all statistical significance, tests, the cut-off value set was p≤0.05.

**Result:** From the total study participants 25.2% had good knowledge. About 21.4% had good practice in hypoglycemia prevention. Educational status was found to have positively associated with knowledge. Respondents who attained primary and secondary education were 2.14 and 3.02 times (95%CI: 1.19, 3.84, 1.53, 5.98) more likely to have good knowledge than illiterate respectively. Respondents who had completed college and above were 2.35 times (95%CI: 1.08, 5.13) more likely to have good knowledge than illiterate. Member of diabetic association was positively associated with knowledge and practice, AOR 3.91 (95%CI: 2.26, 6.77),6.08(95%CI: 3.34, 11.05) respectively. Education and religion had also positively associated with hypoglycemia practice.

**Conclusion:** There was knowledge and practice deficit in hypoglycemia prevention, especially identification of symptom of hypoglycemia, caring table sugar and self-blood glucose monitoring.

**Recommendation:** Diabetic association should focus on education about prevention and identification of symptoms of hypoglycemia. Health professionals should design and provide diabetic education tailored to patient education level.

**Keywords:** Hypoglycemia, Knowledge, practice, self-blood glucose monitoring
Determinants of Obesity among Women of Childbearing Age in Urban Areas of Ethiopia. Alemayehu Begale, MPH, College of Health and Medical Sciences, Haramaya University, Wubegezer Mekonnen, PhD, School of Public Health, College of Health Sciences, Addis Ababa University.

Background: Obesity is a major public health problem globally with rapidly increasing level. Evidence suggests that the situation is likely to get worse, especially among women because they tend to gain weight during their childbearing age, putting them at risk for cardiovascular diseases, type II diabetes, hypertension, and many other chronic diseases. Only a few studies assessed the situation of obesity in women of childbearing age living in urban areas of Ethiopia.

Objectives: The aim of this study is to identify factors associated with obesity among women of childbearing age in urban areas of Ethiopia.

Methods: The study used women’s of childbearing age dataset from the 2011 Ethiopian Demographic and Health Survey. The survey sample was designed to provide national, urban/rural, and regional representative estimates of key health and demographic indicators. This study used 3,535 urbanites from the total sample of 14,505 interviewed women. The sample was selected using a two-stage stratified cluster sampling procedure. Odds ratio along with 95% confidence interval in binary logistic regression was used to assess factors associated with obesity among urban women of childbearing age.

Results: The prevalence of obesity was 100 (2.84%) among women of childbearing age living in urban areas of Ethiopia. Spousal illiteracy (AOR= 0.50; 95% CI (0.26 - 0.94), households’ medium (AOR=2.01: 95% CI (1.10 – 3.67) and high wealth terciles (AOR= 6.37; 95% CI (3.38 – 12.00) were associated with obesity. Moreover, women residing in A far, Oromiya, Somali, Harari, Addis Ababa and Dire Dawa regions were (AOR= 4.91: 95% CI; 1.24 – 19.47), (AOR=5.68: 95% CI; 1.52 - 21.16), (AOR=17.81: 95% CI; 4.97 – 63.78), (AOR=4.62: 95% CI; 1.36 – 15.64), (AOR=4.21: 95% CI; 1.28 - 13.75) and (AOR=6.06: 95% CI; 1.81 – 20.23) respectively times more likely to be obese compared to those living in Tigray region.

Conclusion: Obesity among women of childbearing age in urban areas was evidenced. Husbands’ education, wealth status and region of residence were associated with obesity. Interventions should be focused on region of residence and wealth status of households to bring about change in obesity level among women of childbearing age in urban areas of Ethiopia.
Assessment of Knowledge, Attitude and Practice towards Podoconiosis and Associated Factors among Machakel Woreda Communities, East Gojam Zone, North West, Ethiopia. Mages Wubie, Debre Markos University, Medicine and Health Science College, Department of Public Health.

**Background:** Podoconiosis is a geochemical disease affecting individuals exposed to red-clay soil in endemic areas. It leads to bilateral progressive swelling of the lower legs. This disease is not transmittable, preventable and treatable especially in early stages. To this cross cutting preventable issues assessing the gap of knowledge, attitude and practice of communities towards podoconiosis plays vital role in the prevention and control of the disease.

**Objective:** the aim of this study was to assess the knowledge, attitude and practice towards podoconiosis and associated factors among Machakel woreda communities North West Ethiopia, May, 2013.

**Method:** A community based cross sectional study was conducted. Eight hundred forty respondents were selected by using systematic random sampling technique from five Kebeles. The data were collected by using pre tested structured questionnaire and the collected data were cleaned, coded, entered into SPSS version 16 and analysed using this software.

**Results:** A total of 782(93.1%) responded the questioner. Of these, 605(77.4%) of respondents were knowledgeable while the remaining are not and separately 695(88.9%) respondents knew or heard about podoconiosis and 729(93.3%) of them saw podoconiosis patients. Seventeen percent of the respondents also believed that contact with affected person is the cause of the disease. Out of responded participants 491(62.8%) had favorable attitude towards podoconiosis. In terms of shoe wearing practice, 562(71.9%) replied that they had worn shoes at least once and 382(48.8%) were wearing shoes during interview and most of the respondents worn plastic shoes/boots not reaching legs type. Occupation and income were found to be significantly associated with knowledge with AOR of 0.3(0.13, 0.67) and AOR of 7.7(3.1, 19.4) respectively while attitude and practice were not significantly associated with knowledge.

**Conclusion and Recommendation:** A considerable proportion of the communities had not knowledgeable, unfavorable attitude towards podoconiosis and poor shoe wearing practice so that, awareness raising and behavioral change interventions should be initiated.

**Keywords:** podoconiosis, knowledge, Attitude, Practice of shoe wearing
Diabetes Mellitus and Associated Factors in Human Immunodeficiency Virus Infected Individuals at Jimma University Specialized Hospital, Southwest Ethiopia. Abdurehman Esbate, Tilahun Yemane and Wagatola Cheneke

Background: The global burden of diabetes is rising dramatically worldwide and is causing a high health burden in low and middle income countries. The International Diabetes Federation (IDF) estimates that 382 million people have diabetes in 2013; by 2035 this will rise to 592 million worldwide. In 2013 diabetes caused 5.1 million deaths globally, every six seconds a person die with diabetes. Almost 80% of diabetes deaths occur in low and middle income countries. Ethiopia is one of the countries of the IDF Africa region. The national prevalence of diabetes in Ethiopia was estimated 2-3% in the general population and 4.36% in the adult population.

Objectives: To assess the magnitude of diabetes mellitus and associated factors in HIV/AIDS positive individuals.

Methods: An institution based cross sectional study design was conducted from April to May, 2014 at JUSH, comprehensive chronic care and training center in a total of 393 HIV infected individuals. Convenient sampling technique was implemented and the samples were taken consecutively. Socio-demographic and anthropometric data was collected by structured questionnaire. Laboratory analysis of serum glucose, total cholesterol, triglycerides, HDL, LDL and HCV was done according to the manufacturer’s instruction. The data was analyzed by SPSS version 20 and descriptive and inferential stastics was applied.

Results: A total of 393 HIV infected individuals of age ranging from 21 to 75 years with mean age of 37.9 ±11.18 (mean ±SD) had participated in this study. The total prevalence of diabetes mellitus (DM) in this study was 6.4 % (n=25). Two hundred ninety one (74%), and 77(19.6%) of the study participants had normal glucose value (70-110 mg/dl) and impaired fasting glucose value (111-125 mg/dl) respectively. After adjusting of the other variables, age (AOR=2.98, 95%C.I: 1.04-8.51, P=0.042), duration of HAART (AOR=19.48, 95%C.I: 2.59-146.44, P=0.004), hypertension (AOR=5.49, 95%C.I: 1.88-16.08, P=0.002) and dyslipidemia (AOR=6.07, 95%C.I: 2.07-17.83, P=0.001) had strong significance association with diabetes.

Conclusion and recommendations: We conclude that, diabetes was highly prevalent among adult HIV/AIDS patients, at comprehensive chronic care and training center of JUSH. We recommend that all newly diagnosed HIV/AIDS patients should be routinely screened for diabetes, both before and after initiating HIV treatment. All the adult HIV/AIDS patients should have routine checkup for hypertension and lipid profile tests must be routinely done for screening of dyslipidemia.
Coexistence of Chronic Complications among Diabetic Patients at Nigist Eleni Mohammed Memorial Hospital, Hossana, South Ethiopia. Dawit Jember Tesfaye1, Fasil Tesema2, Mohammed Taha3 1Department of clinical nursing, Hossana Health Science College, Hossana, Ethiopia 2Department of Epidemiology, College of public health and medical science, Jimma University, Jimma, Ethiopia 3Department of Epidemiology, College of public health and medical science, Jimma University, Jimma, Ethiopia

Background: Chronic complications reduce quality of life, increases diabetes related mortality and overburden the public health services. Besides chronic complications affect working age diabetics and contribute to poverty. This study aims to assess the prevalence of chronic complications and its associated factors among diabetic patients at Nigist Eleni Mohammed Memorial Hospital, Hossana, South Ethiopia.

Method and Materials: We conducted a hospital based cross sectional study. A simple random sampling technique was used to select 266 participants from the follow up clinic of the hospital. Data were collected using semi structured questionnaire, weight, height, waist and hip circumference measurements and patients chart review. Descriptive statistics was used to describe the study variable. Bivariate and multivariate logistic regression analysis was used to identify factors associated with chronic diabetic complications.

Result: Out of 247 diabetic subjects, 114(46.2%) were found to have at least one chronic complication that included, hypertension 59 (23.9%), diabetes related eye disease 29 (11.7%), neuropathy 25 (10.1%) and nephropathy 16 (6.5%). Compared to age group 15-29 there was higher risk of chronic complications for those who were in age groups 45-64, [AOR=2.50, (95% CI): (1.20, 5.22)] and ≥65 years, [AOR=7.18, (95% CI): (2.10, 24.87)]. Duration of diabetes >10 years [AOR=2.87, (95% CI): (1.20, 6.8)],and not performing self-monitoring of blood glucose,[AOR=15.22, (95% CI): (3.07, 75.48)] were also strongly associated with chronic complications of diabetes mellitus.

Conclusion and Recommendation: Considerable number of diabetic participants in this study area had at least one chronic complication. Screening may delay the onset of chronic complication among older diabetic patients and those with longer diabetic duration. Diabetic education should focus on health benefit of self-monitoring of blood glucose. Making self-monitoring of blood glucose equipment readily accessible and affordable for all diabetic patients needs special warrant.

Keywords: Diabetes mellitus, chronic complication, Risk factors
Association of Dietary Salt Restriction and Iodine Status in Hypertensive Patients and Non-hypertensives in Addis Ababa Hospitals, Ethiopia.

Girmay Ayana, Ethiopian Public Health Institute; Cherinet Abebe, USAID/ENGINE; Hwit Abebe Hawasa University.

Introduction: Hypertension is an important public health problem worldwide and the trends of prevalence have increased in economically developing countries. Reducing dietary sodium which mainly comes from salt is one of the main recommendations to treatment hypertension. Salt is a vehicle for iodization. Restriction of salt consumption for hypertension patients could cause a reduction of iodine intake from iodized salt.

Objective: This study determined the association between dietary salt restriction, iodine status and knowledge in hypertensive and non-hypertensive patients.

Method: Institutional based cross sectional comparative quantitative study was conducted. Blood pressure was measured and urine samples were collected by simple random sampling method. Data on socio-economic status, life style and medical history was collected using structured questionnaire. Estimates of the iodine status were based on the measurements of the excretion of iodine in urine. The association between dietary salt restriction and iodine status was analyzed using bivariate logistic regression model.

Result: The MUIC were 41.56(SE 9.41μg/L) and 46.14(SE 7.86μg/L) in hypertensive and non hypertensive respectively. More than 76% were iodine deficient and greater than 30% were severely deficient. The prevalence of iodine deficiency was higher in dietary salt restricted hypertensive patients than non dietary restricted patients but the difference was not statistically significant (P. value=0.12). Hypertension patients on medication were 88% less likely to be iodine deficient than those do not receive medication. UIE of both groups are considerably lower than the recommended intake and dietary salt restricted patients are more likely to be iodine than unrestricted.

Conclusion: Iodine intake is inadequate in dietary salt restricted hypertensive patients. Correcting this situation will have impact on iodine status of hypertensive patients and health planners needs to emphasis on alternative iodine intervention mechanisms to hypertension patients.

Keywords: hypertension, salt restriction
Health Seeking Behavior of Patients with Cervical Cancer at Tikur Anbessa Hospital, Addis Ababa, Ethiopia. Zinaw Mesqint

Background: Cervical cancer is becoming one of the public health problems across the world but the problem worsens in developing countries because of socio-cultural and other reasons. By the time Ethiopian women go for health care, the stage of cervical cancer has already advanced.

Objectives: The objective of this study was to assess and document health seeking practices of patients with cervical cancer at Tikur Anbesa Hospital.

Methods: A qualitative, ethnographic study was designed for patients who were admitted with cervical cancer in Black lion Hospital. Accordingly, purposively selected participants were in depth interviewed and interview data was transcribed and then translated into English and analyzed thematically. The study period was from October 2013 to April 2014.

Findings: the study found that there is low level of awareness about cervical cancer, delayed decision making up on experiencing sign and symptoms of the disease, failure to utilize existing facilities, and lack of accessible screening cervices and early detection and referral system.

Conclusion and Recommendation: awareness about preventive and treatment services for cervical cancer is generally lacking and patients tend to get services rather at late stage. Creating awareness about the sign and symptoms, screening programs and treatment strategies to ensure prevent late and advanced diagnosis is essential by involving all relevant stakeholders.
Assessment of Knowledge and Self Care Practices among Type 2 Diabetes Patients in Mekelle and Ayder Referral Hospitals, Mekelle City, 2012/2013.

Kalayon Kidanu, Mekelle University College of Health Sciences Department of Nursing; Haftu Berhe, Alemseged Aregy, Hailemariam Berhe

Background: Diabetes is a group of metabolic disorders that affect the body’s ability to process and use sugar (glucose) for energy. Type 2 diabetes mellitus resulting from the combination of resistance to insulin action and inadequate insulin secretion. Knowledge of diabetes self care is the provision of diabetic patients with management skills, and motivation to effectively manage their condition together with diabetes knowledge, which is the bed rock of the self care practices. Poor patient understanding of diabetes is believed to impede appropriate self-care management, thus accelerating cardiovascular complications, stroke, and kidney failure. The success of long-term maintenance therapy for diabetes depends largely on the patients’ adherence with self-care practices.

Objective: will be to assess knowledge level to diabetes and self care practices, self care practices status and associated factors among type 2 diabetic patients in Mekelle hospital and Ayder referral hospitals, Mekelle City, Tigray, Northern Ethiopia.

Method: the research design will be institutional based cross sectional method and 343 study subjects will be selected using systematic random sampling technique and the data will be collected using interviewer administered structured questionnaire, data will be entered in to EPI-INFO version 3.5.1 and analyzed and cleaned using SPSS version 16. Frequencies and proportions will be computed. Bivariate and Multivariate logistic regression will be computed to assess statistical association between the outcome variable and selected independent variables and significance of statistical association will be assured or tested using 95%CI and P-value (<0.05). Scoring method will be employed to classify patients’ self-care practice level as adhered or not adhered and assess their knowledge level.

Result: A total of 310 male and female adult type 2 diabetes patients were interviewed using standardized structured questionnaire and the response rate was 96.8 %. Of all respondents 57.7% were Male. The majority of the respondents 69% were in the age group of 40 to 69 years. Mean age of patients was 50.02±12.01 years. Majority of respondents 88% were orthodox Christian by religion and Tigrian 95.3% by ethnicity. Of all respondents 46.7%, 73.3 % and 34.5% did attend formal education, were married and unemployed respectively and majority of the respondents 57% had very low monthly income. The mean age in which diabetic disease occurred was 44.53±11.07 years. The mean duration of diabetes was 5.63± 7.6years. More than half respondents 58.7% had multiple injection treatment (two injections per day). Of all respondents only 12.7% had long term diabetic complication confirmed medically. This study also analyzed respondents’ diabetes knowledge level and of the total only 44.0 % of the respondents scored ‘good’ on the total diabetes knowledge questions.

This result showed that there was significant association between diabetes family history and diabetes knowledge level [P<0.025, AOR (95% CI) = 1.860 (1.077-3.209)]. The majority 86.0% of the study participants were not adhered to Self Monitoring of Blood Glucose. Those who have glucometer at home were eleven times less risk not to be adhered to the practice when compared with those who didn’t have [P<0.001, AOR (95% CI) = 10.722 (4.095-28.075)] and those who arc with monthly income of above average were adhered nigh times more than counterpart [P<0.001, AOR (95% CI) = 9.036(1.742-46.879)].
A total of 83.7% respondents were adhered with prescribed anti-diabetic drugs and there was significant association between prescribed medication adherence condition and monthly in come [P=0.015, AOR (95% CI) = 2.761(1.106-6.892)].

From the total respondents 74.0% were reported adhered to physical activity that meet the recommended guidelines and those who were employment and age had statistically significant association with their adherence condition to physical activity [P=0.001, AOR(95% CI)=4.349(1.191-15.884) and [P=0.453, AOR(95%CI)= 0.375(0.150-0.940)] respectively. Of all respondents 51.3% were adhered to the recommended diabetic foot care practices and Education, marital status and monthly income were found to have statistically significant association with adherence to diabetic foot care practices [P=<0.001,AOR (95% CI) =10.525(1.256-3.297)] and [P=<0.001, AOR (95% CI) =2.101(1.060-4.165)] respectively. Over all Self-care practices were reported adhered in 51.0%respondents. Education level, Marital status and diabetes complication were found to have statistically significant association with adherence level to overall diabetes self care practices [P<0.001, AOR (95% CI) =4.194 (1.213- 14.510), [P<0.001,AOR(95%CI)=0.343(0.162-0.726)] and [P=<0.004, AOR (95% CI) =2.860 (1.109-7.375)]

**Conclusion:** Despite the important role of diabetes knowledge and self-care practices in management of diabetes were recognized to be useful and effective in achieving diabetes control and preventing its serious complication, findings of this study confirm previous findings concerning the diabetes knowledge level and self-care practices among people with type 2 diabetes: Prescribed medications adherence practice was accomplished as recommended in majority respondents, but the other aspects of self-care practice and diabetes knowledge level were more problematic. Diabetes knowledge level, SMBG practices and diet management practices especially warrants. Generally diabetes knowledge level and adherence to self-care practice was suboptimal among type 2 diabetic patients in Ayder referral hospital endocrinology and Mekelle hospital chronic care unit.
Assessment of Knowledge, Attitude and Practices of Diabetes Mellitus Patients on Life Style Modification and Medication Use at Diabetes Clinic of Durame Hospital, South Ethiopia. **Seid Musa Ahmed (B.Pharm, MSc)*, Assefa Ejama (B.Pharm)*, Jimma University, Department of pharmacy, Jimma, Ethiopia.

**Background:** diabetes mellitus (DM) is one of the most common chronic diseases in nearly all countries and continues to increase in number and significance as changing life style.

**Objective:** To assess knowledge, attitude and practices of diabetes mellitus patients towards life style modification and medication use in Durame Hospital, south Ethiopia.

**Methods:** a cross sectional study was conducted from Jan 28, 2014- Feb 8, 2014 at diabetes clinic of Durame hospital, south Ethiopia. The sample size was calculated by using single population formula. Data were collected by face to face interview by using semi-structured questionnaires.

**Results:** From all 245 targeted study participants, 236 were interviewed in this study. The number of males is greater than the number of females, 131 and 105 respectively. Concerning type of DM obtained from health background 107 (43.22%) were Type I, males 59(25%) and females 43 (13.22%). Type- II DM patients were 123(52.12%), males were 54 (22.88%) and females were 69 (29.24%). The greatest numbers of patients were in the age range of 30-39, 50 (23.73%). From overall findings, 64(27.12 %) of respondents had a good knowledge of life style modification and medication use, 51(21.61%) had moderate knowledge and 121(51.27%) poor knowledge. Among the study participants 189(80.08%) had positive attitude towards life style modification and medication use and 47(19.92%) had a negative attitude. With regard to prevention and treatment practices, 195(82.63%) had good practice and 41(17.37%) had poor practice.

**Conclusion and Recommendation:** The study findings suggest that the around half of the study participants have moderate knowledge, and the majority have good practice and positive attitude towards diabetes life style modification and medication use. In order to have better knowledge, attitude and practice there should be educational sessions in the hospital set up about life style modification and medication usage as this plays great role in their disease management.

**Keywords:** Diabetes Mellitus, Knowledge, Attitudes, Practices.
Knowledge Attitude and Practices on Breast Cancer among Women in Tigray Region, Northern Ethiopia. **Alemayhu Bekele** *(Masters in Public Health), Program Coordinator, Ethiopian Public Health Association*

**Introduction:** Global burden of cancer cases and deaths is rising from time to time. Breast cancer is one of the leading causes of cancer related morbidity and deaths in women. The trend of cases and deaths attributed to these cancer types is sharply rising in developing countries including Ethiopia. Increased awareness and healthy behaviours appeared to reduce the incidence of this jeopardy. The aim of this study was to assess the knowledge, attitude and practices of breast cancer in relation to screening practices to design appropriate awareness raising practices to enhance preventive measures.

**Methods:**
A descriptive cross-sectional community based survey was conducted in Kilte-Awlaelo Health and Demographic Surveillance Survey sites and Mekelle Town. This was undertaken as part of the wider WHO steps wise survey in the two settings. Data were collected from December 2013-January 2014. A total of 1,433 women in the age group 25-64 years old were included. Face to face interview was employed to gather data from individual respondents. Poor knowledge or No knowledge was defined as woman who does not have any information regarding the risk factors of breast cancer its consequences and screening of breast cancer or who heard only the terms but without any further information. Data were entered to EPI data software and exported to SPSS version 20 to carryout descriptive and analytical statistics. Significant statistical association between the outcome and explanatory variables was declared using odds ratio and corresponding 95% confidence interval. The findings were presented using tables and figures.

**Results:** The median age of the study participants was 31 year (ranged from 25-64 year). Seven hundred thirty nine (52.5%) were married or cohabiting at the time of the study. Majority(86.7%) of the study participants had no information or only heard the term breast cancer. Four hundred forty one (34.9%) reported they did not have the worry that breast cancer could affect their families. Most(79.4%) did not know how to examine their breasts. About 80.5% of the women did not practice breast self-examination. Most(90.2%) did not have breast examination by a health worker. The predictors of practicing self-breast examination after adjusting for potential cofounders were: being a resident of Kilte-Awlaelo0.57(0.33-0.98), age group 25-34, 35-44 and 45-54 had 3.0(1.13-7.93), 3.07(1.14-8.26) 3.03(1.04-8.89) respectively, being government employee, NGO employee, self-employed, housewife and farmer .07(0.24-22), 0.14(0.03-0.62), 0.20(0.08-0.48), 0.40(0.16-0.95) and 17(0.05-0.55) respectively, knowing nothing at all and knowing only the term 0.11(0.03-0.39) and 0.29(0.09-0.92) respectively, Who worried sometimes 2.97(1.61-5.48) and those women who had physical examination of their breasts by a health worker 9.70(4.96-18.98).

**Conclusions and Recommendations:** The knowledge status of the study participants on breast cancer was very low. Negative attitudes were high. Practices of breast self-examination and examination by a health worker were far below expectation. Knowledge status about breast cancer, previous exposure to health worker and some socio economic conditions were found to be predictors of breast self-examination. Basic information on breast cancer has to be imparted using appropriate channels of communication. Health facilities should also provide relevant information and support to women on breast cancer information.
Birhanu Kenata Sori, Addis Ababa University School of Public Health Fourth cohort Ethiopian Field Epidemiology Training program Residents, Abushet Asnake, 12Addis Ababa University School of Public Health Fourth cohort Ethiopian Field Epidemiology Training program Residents Tesfaye G. Deti, Oromia Health Bureau PHEM core process Owner,. Dr. Daddi Jima, Ethiopian Health and Nutrition Research Institute Deputy Director and program coordinator

Introduction: Measles continues to be a leading cause of public health problem in developing countries, despite the availability of an effective vaccine. Suspected Measles outbreak has been reported in Gelana Woreda of Borena Zone, Oromia, Ethiopia in the first week of January 2014. Consequently, we conducted investigation to confirm the existence of the outbreak, identify potential risk factors and undertake appropriate public health interventions.

Methods: We defined a case of suspected measles based on National measles case definition as a person developing Maculopapular rash with fever 38.5 degree centigrade and above with one or more of the other signs Coryza, conjunctivitis and cough. A matched cases control study was conducted and analyzed using Epi info, ARC GIS and Microsoft excel.

Result: One hundred and sixty one cases with 10 community deaths were identified with the attack rate 2 cases/1000 people with 6.2 CFR per 100 cases. The ages of the cases ranged from 4 months to 35 years (with mean age of 4.9 years; median: 3.0 years. Contact history with case-patient (AOR: 25.94, 95% CI 7.00-96.00), history of travel two weeks prior onset of illness (AOR: 7.72, 95% CI 2.04-29.14), living in unventilated house (AOR: 14.6, 95% CI, 5.9700_35.4711) were found to be significantly associated with measles infection. Being vaccinated for measles vaccination (AOR= 0.266, 95% 0.08_ 0.88) was protective. There was no statistical significant difference in the socio-demographic characteristics of both cases and controls.

Conclusion and Recommendation: This investigation revealed that the outbreak was likely contributed due to accumulation of a large number of susceptible individuals in the community exacerbated by contact among cases, unventilated households and low immunization activity which was highly significantly associated with the cases. We recommend improved routine and supplementary immunization activities, strong ongoing active case surveillance for the district.

Keywords: Measles; Measles Outbreak investigation
Rubella Outbreak Investigation and Response in Pastoralist Community of the Ethio-Kenyan Boarder of Miyo District-Borena zone, Oromia, Ethiopia, December 2013. Birhanu Kentasori, Addis Ababa University School of Public health Fourth cohort Ethiopian Field Epidemiology Training program Residents, Birhanu Areda, 12Addis Ababa University School of Public health Fourth cohort Ethiopian Field Epidemiology Training program Residents TesfayeG. Deti, Oromia Health Bureau PHEM core process Owner,. Dr. Dadi Jima, Ethiopian Health and Nutrition Research Institute Deputy Director and program coordinator

**Background:** Rubella is an acute contagious infection caused by the Rubella virus. It presents fever with maculopapular rash similar to Measles. When woman contracts rubella early in pregnancy, serious consequences may occur including birth defects known as congenital rubella syndrome (CRS). Little is known about rubella epidemiology and the incidence of CRS in Africa. At present Rubella vaccine is not included in any vaccination program in Ethiopia. In November 2013, Miyo Woreda of Borena zone, Oromia - Ethiopia reported suspected Rubella cases and we investigated to confirm the etiology, identify potential risk factors and suggest control measures.

**Method:** We conducted descriptive cross sectional study design followed by matched case control study to identify possible risk factors. Serological test was also applied to confirm rubella immunoglobulin M (IgM) antibody in the blood specimen. Data were analyzed using Epi info, ARC GIS and Microsoft excel accordingly.

**Result:** We identified 183 suspected Rubella cases with zero death. The median age of the case was 6 years. The overall attack rate of this outbreak was 0.29%. We collected ten blood samples with 100% positivity rate for Rubella IgM antibodies. Travel history to outbreak area (OR= 26.29, 95% CI= 9.15 - 77.87), having contact with a person who had a recent illness consistent with Rubella (OR: 34.0, 95% CI: 11.44-104.90), living in unventilated house (OR=14.6: 5.59-38.14) were found to be significantly associated with rubella infection.

**Conclusion:** Finally we investigate rubella outbreak in arid-pastoralist society of Borena zone of Miyo district. It is found that recent travel to an areas where cases of Rubella was reported, attending a school where the cases present and the housing condition with poor ventilation were significantly associated with rubella outbreak. We recommend the FMOH of Ethiopia should introduce Rubella containing vaccine into national vaccination programs.

**Keywords:** Rubella, Rubella outbreak, CRS

Background: Rubella is a contagious viral rash illness. Trans-placental infection leads to serious foetal disorder called Congenital Rubella Syndrome (CRS). Worldwide, more than 110,000 infants are born with CRS each year; most of these occur in developing countries where information is limited on the epidemiology and vaccine not reintroduced. This study was conducted to see the trend, age distribution, seasonal and zonal distribution of rubella infection in Amhara Regional State.

Method: A total of 4401 serum/plasma samples were collected among measles/rubella suspected cases from all zone of Amhara Region, Ethiopia during January 2009 to December 2013. The samples were tested for measles and rubella IgM by ELISA. The data was analysed by Epi Info software version 3.5.4.

Result: Of 2552 samples tested for Rubella virus IgM, 453 (17.8%) were positive and the rest 241 (9.4%) and 1858 (72.8%) were found indeterminate and negative respectively. The prevalence of rubella increased linearly from 3.1% in 2009 to 36.7% of 2013. Rubella infection was slightly higher among females (19.4%) than males (16.2%) and highest 26.9% (189/702) among 5-9 year children, followed by 20.8% (74/356) of 10-14 year children. Rubella reached peak during the hot dry season (March to June) of Ethiopia, the highest peak (26.7%) was in April. The highest rubella positivity rate 29% (20/69) was seen in Oromiya special zone followed by 23.7% (100/422), and 20.8% (20/96) of South Wollo, and Bahir Dar respectively. The lowest positivity rate of rubella was seen in Wag Himira zone (7.3%). Among all rubella positive cases, 22.1% (100/453) was detected in South Wollo zone.

Conclusion: In Amhara Regional State of Ethiopia, Rubella is an increasing non-reportable public health problem and the infection is seasonal mostly affecting children. The current prevalence of rubella cases calls for conducting sero-prevalence surveillance among pregnant mothers, CRS surveillance in infants, reporting and necessitates the introduction of rubella vaccine into the national routine immunization services.

Keywords: Rubella, Amhara, 2009-2013

Background: Anthrax is a zoonotic disease caused by *Bacillus anthracis*. It has significant economic and public health impact around the world, especially in developing countries like Ethiopia. The aim of this study was to identify the most affected districts based on surveillance data analysis and to initiate one health approach intervention.

Methods: A cross-sectional study was undertaken during August to September 2014 on the Amhara region human anthrax surveillance data of 2011-2014. We based on the database to analyze variables. The national surveillance guideline was used for case definitions and final classification of cases. Animal health activity reports were also reviewed for vaccination coverage of livestock in the region. We also followed one health approach and involved both public health and veterinary side in this study. Then descriptive statistical analysis was made using Microsoft Excel and Epi Info Version 3.5.1. Focus group discussion was also made in the field after data analysis.

Results: A total of 2602 human anthrax cases and 18 deaths reviewed between 2010 and 2014 in Amhara region health bureau surveillance unit. Of these, 1317 (50.6%), 411 (15.8%) and 334 (12.8%) were reported from Waghimra, north Gondar and south Wello zones respectively. Waghimra zone has only 2.4% (509,348) of the total population of the regional state, but reported 50.6% of cases and 33.3% of deaths of the region. From seven districts of Waghimra zone, Abergelie (133 cases) and Sekota zuria (91 cases) reported the highest number of cases. In 2014, the vaccination coverage of livestock in Waghimhira zone was found very low (27.2%, 1260762) compared to the regional coverage (72.2%, 31,063,418). At about 2000 goats and sheep, and 35 similar animals died of anthrax in 1995 and 2013 to 2014 respectively. In all districts of Waghimra, eating sick animal and using animal hide for various purposes found a common practice. Zonal and woreda officers also replied vaccination cost, recurrent draught, limited attention for anthrax by animal health workers, and shortage of budget were principal challenges to improve the health of animals. There was no good surveillance data and regular reporting period found regarding animal health unlike the public health surveillance system.

Conclusions: Anthrax was found the most prevalent both human and animal health problem in Waghimra zone of Amhara region. The animal vaccination coverage was very low and animal health surveillance system was also weak. Therefore the regional livestock development agency should establish the surveillance system and work with regional health bureau and other relevant organizations to improve animal health and to decrease anthrax both in animals and humans.

Keywords: Anthrax, Waghimra zone, Amhara region, Ethiopia
New foci for Cutaneous leishmaniasis - Ankesha District, Amhara region, Ethiopia. Woynestet Geley1, Tsegerea Amsah2, Belay Bezagibi3, Geremew Tase4, Adugna Abera5, Endaleamaw Gadiya6. 1Amhara Regional Health Research Laboratory Center, 2Amhara Regional Health Bureau, 3Ethiopian Public Health Institute, 4Armauer Hanson Research Institute

Background: Cutaneous leishmaniasis (CL) is found in more than 80 countries in the world. It is under reported due to absence of surveillance system in middle and low income countries. An estimated 0.7 million to 1.3 million new cases occur worldwide annually. Ethiopia is one of the ten high burden countries for CL. It is endemic in the highlands of Ethiopia and more than 99.9% is caused by Leishmania aethiopica. CL is not reported in Ankesha District before.

Method: Case control study was done. 37 cases were enrolled. We used WHO case definition to identify cases. Skin slit lesions sample was taken from 25 cases. Identification of Leishmania parasite was done by smear microscopy and culture. PCR; restriction fragment length polymorphism was done for species identification. Structured questionnaire was used to collect socio demographic characteristics and possible risk factors. Bivariate and multi variate analysis was done using SPSS.

Result: The median age of the study participant was 16 years old with a range of 3 to 66. Males and 10-19 years age group were most affected. Two clinical form of CL were observed; 33 (89%) localized cutaneous leishmaniasis (LCL) and 4 (11%) diffused cutaneous leishmaniasis (DCL). All of CL lesions were observed on the exposed parts of the body such as the face and upper and lower limbs. Number of lesion ranged from 1 to multiple (3 and above). A single lesion was found in 10(27%) of the cases, greater than half 25 (67.5%) of the cases had 2-3 lesions and only 2 (5.5%) cases showed multiple (more than 3) lesion. 16 samples were positive by smear and culture. The proximity of the house to the habitat of hyraxes OR: 17(95% CI: 6.0 - 44.8) and spent evening time outdoor OR: 5.0 (95% CI 2.0-12.5) had significantly associated with developing the disease. The identified parasite isolate is Leishmania aethiopica. The community did not know the cause, transmission and prevention mechanism of CL.

Conclusion: - The presence of hyrax in the kebele was the risk factor. The identified risk factor in the area need further study. The presence of CL in Ankesha, that was not known to be endemic for the disease before indicates the need of leishmaniasis control program in the District to limit its expansion.

Keywords: Cutaneous leishmaniasis, Ankesha, Ethiopia
Domestic Animals Intimacy with Human Associated with Human Diarrhea: a Meta-analysis Report. Hunachew Beyene\textsuperscript{1,2}, Wakaari Deressa\textsuperscript{2}, and Ahera Kumi\textsuperscript{2}

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**Background:** Diarrhea is one of the primary causes of morbidity and mortality on a global scale, leading to 1 billion disease episodes and 1.8 million deaths each year and the second leading cause of death for African children, primarily caused by the fecal-oral transmission of pathogens from the environment to the victim. Possession of domestic animals has been useful as they are the main livelihood sources for majority of people in the developing world. However, an estimated 75\% of emerging infectious diseases in humans have been caused by exposure to zoonotic pathogens. Presence of domestic animals in and around dwellings creates poor hygienic conditions which could be the risk factors for diarrheal agents, and agents could transmit from animal to human in various ways. Though various studies reported different contradicting results, the combined (pooled) effect has not been examined. Therefore, this meta-analysis report is to investigate the pooled estimates of the various studies which involve the intimacy of domestic animals with human to diarrheal disease.

**Method:** a comprehensive literature search was conducted in January 2014 in MEDLINE/PUBMED, IMBASE, LILACS, Google scholar, UCONN library, and by hand searching using appropriate key words. All age and gender categories of population with outcomes of diarrhea as defined by world health organization or Lab confirmed causative agents for possible diarrheal disease were considered. The analysis also considered all categories of domestic animals. Data were extracted from each article with author and year of publication, country of study, and setting, study population (population group), sample size, study design, exposure type, outcome type, and measure of effects presented in the form of Odds Ratio (OR) and 95\% confidence interval. Data was entered in Excel spread sheet then exported to Stata version 13. Random effects model was used to estimate the pooled OR with 95\% confidence intervals (CI) to allow for heterogeneity between the estimates of effect. Cochran Q and I\textsuperscript{2} statistics were used, and for the Q statistic, a \(P\) value <0.10 was considered statistically significant for heterogeneity, and for \(I^2\), a value >50\% was considered a measure of heterogeneity. Publication/selection bias was investigated by checking for asymmetry in funnel plots of the study ORs against the standard error of the logarithm of the ORs. Out of the 840 potentially relevant studies, 25 studies with 34 estimates were found to be appropriate for the review and Meta analysis. The total sample size of the studies was 25857 people. Subgroup analysis was made for various groups.

**Results:** An \(I^2\) value of 86.5.6\%, \(P\) value =0.000 using random effects model showed there is significant heterogeneity. The pooled analysis of estimates from the 34 estimates demonstrated an increase in the risk of diarrhea in exposed individuals to domestic animals (OR= 1.46; 95\% CI= 1.20–1.79). This indicates that exposure to domestic animals result in infection with agents of diarrheal disease. The subgroup analysis indicated that the result was consistent in both developing and developed countries (OR 1.42= 95\% CI= 1.11, 1.81) and (OR= 1.51; 95\% CI=1.06, 2.29) respectively. The risk was higher on children (OR=1.50, 95\% CI=1.17, 1.93), may be linked to the fact that they are not immuno-competent. Significant association observed in studies with lab confirmation of agents (OR=1.91, 95\% CI=1.29, 2.83), which strengthens the fact that domestic animals association with human result in zoonotic diseases.

**Conclusion:** Though different studies report contradicting information, the current meta-analysis report reveals that contact with domestic animals can result in infection which leads to diarrheal disease. In countries like Ethiopia where 90\% of rural households own farm animals and share dwellings with human, the risk might be higher. This is indicative of action for various stakeholders in the health and agriculture field. Further studies targeting the domestic animals as a specific risk factors need to be done.
Assessment on Unsafe Sexual Practice and Determinant Factors among High School Students in Arba Minch Town, Gamo Gofa Zone, SNNPR, Ethiopia. Mesrach Hailu, Department of Public Health, AMCHS, Firehiwot H. Department of Midwifery, AMCHS; Alemitu W. Department of Midwifery AMCHS.

Background: Sexual activities among youth have been reported to increasing worldwide. Several studies in Sub-Saharan Africa have also documented high and increased premarital sexual activities among adolescents. Delaying sexual initiation has been promoted as one of the methods of decreasing risks of HIV among young people.

Objectives: The objective of the study was to assess unsafe sexual practice and determinant risk factors contributing to this practice among high school students in Arba Minch Town.

Methodology: A cross-sectional study was conducted in five high schools in Arba Minch town between Oct to Dec 2011. Moreover, the study undertakes FGD in two schools and the grouping was made by sex. Bivariate analysis was used to show the association between the unsafe sex experience and other independent factors. On the other hand, a multivariate binary logistic regression model was used to find the determinant for unsafe sex.

Result: About 463(50.4%) male and 456(49.4%) female high school students was participated. Of which 235 (25.8%) had the experience of early sexual practice at the time of the survey, from these 163(69.4%) were males. Male students (AOR=2.84, 95% CI (1.73, 4.6)) was obtained to have significant positive association with early sexual practices. The mean age at first sexual intercourse was obtained to be 15 years. About 5 percent of the students reported that they had been pregnant or had made someone else pregnant. 1.6% of the students or 6.4% of students with early sex experience had abortion experience or had made someone else to abort pregnancy.

Conclusion: The prevalence of sexual intercourse among the town high school students was obtained to be high (one-fourth or 25.8%). More over male students were at higher risk of practicing sex. This large number of high school students predisposes them to different sexual and reproductive health problems.

Recommendation: Attention should be given to Reproductive health needs of high school students: providing counseling centers to increase the knowledge, understanding on unsafe sexual practice, reproductive issues like STIs, emergency contraceptives, HIV/AIDS, and other SRH issue.
Assessment of Fertility Desire among on Art People Living with HIV in Arbaminch and Zuria Woreda Health Facilities Attending Care and Treatment in Art Unit. Firehiwot Hailu, Department of Midwifery, AMCHS; Mesrach Hailu (M.SC), Department of Public Health, AMCHS.

Background: Recent evidence indicated that Ethiopia is one among countries that has shown an increase in risky sexual behavior among PLWHA. The number of children newly infected with HIV in 2012 was 35% lower than in 2009. However, achieving the global goal of reducing the number of children newly infected by 2015 will require similar scale-up of other prevention strategies.

Objective: To assess fertility desire among on ART PLWHA in three Health Facilities in Arbaminch and Zuria Woreda attending care and treatment in ART unit.

Methods: A cross sectional study design was used to collect data by applying quantitative and qualitative methods of data collection. The Study population comprised of all on ART clients attending care and treatment in health facilities giving ART service in Arbaminch town and Zuria woreda. A pretested structured questionnaire was employed to collect information from respondents after obtaining a verbal consent. Data was analyzed using SPSS statistical software. Chi-square and binary logistic regression was carried out to identify the presence of association and the effect of independent variables on fertility desire of PLWHA.

Result: The study revealed that 58.9% of the respondents PLWHA did not want to give birth at all, of these only about 41.14% were using FP and about 58.9% of them were not using family planning method. From married PLWHA 54.2% do not desire to have child, among these 29% of them were not using any modern FP method. On the other hand from married WIWHA 47.7% do not desire a child among these 19.5% were not using any modern FP method. Here in this study PLWHA who desire a child was younger, have fewer number of children alive, have knowledge on MTCT, performed sexual practice in the last six months and less likely to be married.

Conclusion: Fertility desire is found to be high among PLWHA living in the study area. Age, having sexual practice in the last six months, number of children alive, knowledge on MTCT was obtained to be the determinants of fertility desire. On the other hand PLWHA who did not want to desire a child are at greater risk to have unwanted pregnancy as the unmet need on family planning was found to be higher. The country and PMTCT programs will face frightening challenges if the risk of unsafe sex by PLWHA not reduced.

Recommendation: It is critical to establish and strengthen reproductive health service programs in ART care and treatment unit to assist PLWHA in the prevention of unwanted pregnancies and also to ensure that desired conception and birth take place as safely as possible.

Introduction: Indigenous volunteers supported by technical and financial assistance of international donor agencies acted tacitly and persistently to lit the torch of family planning (FP) in Ethiopia in one roomed FP clinic in 1966. As is now, the service has become universally available including the grass roots, thanks to the influence of international conferences related to Primary Health Care, Population and Development, the Ethiopian National Health and Population Policies, the launching of the Health Extension Program, and more importantly the unreserved contraceptive technology update.

Objectives: To enshrine the historical developments of the FP service of Ethiopia for lessons to learn and prevent the milestones that contributed to its being in Ethiopia from being forgotten and lost.

Methods: Literatures reviewed to share views of volunteers who worked for the cause, depict factors that directly or indirectly had influence on the service vis-à-vis the authors’ live experience.

Results: Sponsored by Pathfinder Fund, indigenous volunteers established a FP association in Ethiopia in 1966. It started the service in one roomed clinic by hiring and fulltime nurse that used to give only FP information and, a part time physician to prescribe even the pill. In 1971, the Association became member of the International Planned Parenthood Federation the sole source of material, technical and financial assistance. It then secured a legal entity in the name Family Guidance Association of Ethiopia in 1974, which marked its recognition by the then Ministry of Health (MOH). Hence, it pioneered the training of nurses, midwives and health officers in 1975 and expanded the stand alone FP service to regions until the Alma-Ata Primary Health Care (PHC) Declaration endorsed it a component of PHC in 1978. Therefore, health assistants (the then front line health workers) were involved to give the service in 1982. Later on, the “International Conference on Community Based Contraceptive Distribution (CBD) and Alternative Delivery Systems in Africa” was held in 1986 at Harare, Zimbabwe. Consequently, the CBD program of Ethiopia was launched by training and involving CBD Agents in 1992. Then, the National Health and Population Policies that endorsed intersect-oral collaboration for the FP service in Ethiopia were formulated and proclaimed in 1993. Subsequently, the International Conference held on Population and Development in 1994 in Cairo, annotated FP a population and development issue. Therefore, donor agencies increased their involvement to provide material, technical and financial supports both facility and community based FP services in Ethiopia. In 2005, the Federal MOH launched the Health Extension Program (16 preventive care packages including FP) to be run by Health Extension Workers (HEWs / primary level health workers) phasing out the CBDAs involvement in FP. Ever since, the HEWs have been providing the inject-able and involved in IMPLANON (one rode long acting implant) insertion since 2009. Hence, DHS 2011 depicted the increase of modern contraceptive use among married woman of age 15-49 from 14% to 27% and CPR from 14% to 44% in 2005 and 2011 respectively.

Conclusion: The slow and steady move of the FP service started by indigenous NGO in one roomed clinic, with a nurse limited to giving FP education, and only a physician prescribing the oral pill in 1966 has now reached the level of point of no return addressed most by nurses and frontline health workers. Hence, its development in Ethiopia worth documentation and ignites the notion, INNOVATE and IT CAN BE DONE!! can be done for lessons to learn and aspire for innovations.

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Childhood Sexual Abuse Experiences and its Associated Factors Among Female High School Adolescents in Arbaminch Town, Gammo Goffa Zone, Southern Ethiopia; A Cross Sectional Study. Aleme Mekuria, MPH/RH, Arbaminch College of health sciences; Mullemebet Abera; PhD, department of population and family health, Jimma University; Aderejew Negussie, MPH/RH, department of population and family health, Jimma University.

Background: Childhood sexual abuse is a major social problem in Africa including Ethiopia. Moreover, little has been explored about the pattern of Childhood Sexual Abuse in the context of high school students in Ethiopia in general and in Arbaminch town in particular, thus the present study was aimed to assess the prevalence and associated factors of Childhood sexual abuse among female school adolescents in Arbaminch town.

Methods: A cross-sectional descriptive study was conducted in March 2014 involving quantitative and qualitative methods of data collection. The quantitative study was conducted on 362 randomly selected grade ten female students. A pre-tested self administered questionnaire was used to collect data. Analysis of the data was made using SPSS for windows version 20. Multi-variable logistic regression was used to control confounding effects and the strength of association was expressed in odds ratio and its 95% confidence interval. For the qualitative approach, in-depth interviews were done among 14 purposively selected key informants. Data was analyzed based on the thematic areas.

Result: The prevalence of life time rape among school adolescents in Arbaminch town was found to be 11%. The odds of experiencing life time rape was higher among students who lived alone (AOR=4.30; 95%CI: 1.81, 10.24) and among students who live with their friends (AOR= 3.31; 95%CI: 1.23, 8.89) than those living with their parents. The chance of experiencing rape among students who had no open discussion with their parents about sexuality and reproductive health matters was higher (AOR=2.93; 95%CI: 1.33, 6.45) than those who had discussion.

Conclusion: This study revealed high level of rape among Arbaminch town high school female students. Ever had discussion, living arrangement of the student, and monthly income had statistically significant association with childhood sexual abuse. Unwanted pregnancy and abortion were the most common outcomes of rape. Comprehensive school based reproductive health education, community based awareness creation, open discussion about sexuality and reproductive health matters with students at family level are recommended.

Keywords: Childhood Sexual Abuse, Arbaminch town, Ethiopia
Early Marriage: Perceptions, Practice and Determinants Among Female Child from 2009 To 2013 in Sinane District Northwest Ethiopia. Getege Dejene, MPH., college of Medicine and health science, Debre Markos University; Sileshi Workineh, FinotHiwot End Child Marriage Program (ECMP) manager; Genet Dogu, MSc., Health Sciences and medical College, Debremarkos University, Ethiopia.

Introduction: Child marriage, also known as early marriage, is defined as “any marriage carried out below the age of 18 years, before the girl is physically, physiologically, and psychologically ready to shoulder the responsibilities of marriage and childbearing. It therefore has major consequences for public health, national security, social development, human rights, economic development and gender equality.

Objective: The main objective of this study was to assess the perceptions, practice and determinants factors of early marriage among female child from 2009 to 2013 in Sinane district northwest Ethiopia.

Method: Community-based cross sectional study design was carried out. Stratified multistage sampling technique was used to select the study participants. The data were analyzed using logistic regression and the degree of association between independent and dependent variables was assessed using odds ratio with 95% confidence interval.

Results: A total of 802 participants responded for the interviews making the response rate 95.7%. Majority (74.6%) of the respondents were fathers and 151 (18.8%) of household heads were mothers. About 615 (76.7%) respondents wedded their daughters before 18 years of age. Sixty percent of girls married before their 15 years old. The mean marital age was (14.78 ±4.1). More than half 473 (59%) of respondents wedded one daughter each and the remaining 288 (35.9%) and 41 (5.1%) parents wedded two and three daughters respectively within the last five years. The odds of early marriage practice was 12.2(95% C.I: 5.79, 26.23) times higher among rural residents compared to urbanites.

Conclusion: The prevalence of early marriage practice is high in the study area. Variables like residence, family monthly income, perceived ideal marital age, knowledge of legal marital age and knowing someone who was accused of early marriage crime were independent determinants of early marriage practice.

Keywords: Early, Marriage, Child
Demand for Long Acting Contraceptive Methods and Associated Factors Among Family Planning Service Users, Northwest Ethiopia. Sakamlak Adhara Yake, Berihan Megabiaw Zeleke, Alemanyu Shimeka Teferra.

Introduction: Demand for long acting contraceptive methods is one of the main determinants of total fertility rate and reproductive health issues. Increased demand for these methods will cause future fertility decline. If demand is not met, unwanted pregnancy and abortion is likely to rise. The aim of this study was to assess demand for long acting contraceptives and associated factors among family planning users in Debre-Tabor, Northwest Ethiopia.

Methods: Facility based cross-sectional study was conducted from July to August 2013. Data was collected on 487 family planning users through face to face interview using structured questionnaire. Study participants were selected by systematic sampling method. Data was entered using Epi Info and analysed by SPSS version 20. Bivariate and multivariate regression analysis was done to identify factors associated with demand for long acting contraceptive methods.

Results: Demand for long acting contraceptives was 17% at the time of survey. Only 9.2% of women were using long acting contraceptive methods (LACMs) and 7.8% of the women had unmet need for the methods. Demand for LACMs was positively associated with being daily labour (AOR=3.87, 95%CI=[1.06, 14.20]), being a student (AOR=2.64, 95%CI=[1.27, 5.47]), no future birth intensions (AOR=2.17, 95%CI=[1.12, 4.23]), having five or more children (AOR=1.67, 95%CI=[1.58, 4.83]), and often having discussion with husband (AOR=3.89, 95%CI=[1.98, 7.65]). Client treated poorly by the health care providers during taking the services (AOR=0.42, 95%CI=[0.24, 0.74]) and deciding together with husbands for using the methods (AOR=2.73, 95%CI=[1.40, 5.32]) were negatively associated with demand for long acting contraceptive methods.

Conclusions: Demand for LACMs was 17% which was lower showing a high risk of unwanted pregnancies and abortion. Efforts should be made on increasing awareness on demand for non user dependent methods long acting contraceptives.

Keywords: Demand, long acting contraceptives, Debre-Tabore
Condom Utilization among Female Sex Workers in Gondar Town, Northwest Ethiopia 2014. Mastesha Molla Tamene1, MPH, Department of Youth, Gender and HIV/AIDS, Organization for Rehabilitation and Development in Amhara (ORDA), Amhara Regional State, Ethiopia; Gizachew Assefa Tesemma2, MPH/RH, Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Ethiopia; Getahun Kebede Beyera2, MPH, Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Ethiopia

Introduction: Sexually transmitted infections are amongst the most important public health problems widespread in the world. Especially those who are exercising unsafe sex such as female sex workers are the most at risk population groups due to multiple sexual partners and inconsistent condom use.

Objective: The aim of this study was to determine condom utilization among female sex workers in Gondar town, Northwest Ethiopia.

Methods: Quantitative cross-sectional study triangulated with qualitative method was conducted from March 20 - April 10, 2014 in Gondar town. A total of 488 female sex workers for quantitative part and 10 female sex workers for qualitative data were recruited. Stratified random sampling technique was undertaken in licensed and non-licensed establishment. Pre-tested and structured questionnaire was used to generate quantitative data through interview technique of data collection. In-depth interview was employed to collect qualitative data using open ended and semi-structured questionnaire. The collected data were entered into EPI INFO version 3.5.3 and exported to SPSS version 20.0 software package for analysis. Binary and multivariate logistic regression analyses were done to determine the association between condom utilization and independent variables.

Result: This study revealed that less than half (47.7%) of the respondent utilized condom with any type of client. Secondary or above education [AOR: 3.7, 95%CI (1.70, 8.25)], having knowledge about HIV/AIDS and STI transmission and prevention method [AOR:1.9, 95%CI (1.04, 3.33)], perceiving themselves at risk of HIV/AIDS infection [AOR: 5.9, 95%CI (3.18, 10.51)], having awareness that STI will increase HIV infection [AOR: 3.11, 95%CI (1.62, 5.94), being participated in any HIV/ADIS prevention program [AOR: 13.3, 95%CI (7.33, 24.10)], being tested for HIV/ADIS in the last 12 months [AOR: 3.4 95%CI (1.51, 7.78)], having lower number of clients in a month [AOR:2.48,95%CI (1.42,4.24)] and higher payment for one night sex [AOR:2.1,95%CI (1.57,3.72)] were factors affecting condom utilization.

Conclusion: This finding depicted that condom utilization was low among female sex workers and this puts them at higher risk of acquiring HIV infection and other sexually transmitted infections. Being educated, having knowledgeable about HIV and STI prevention and transmission methods, being participated in any HIV prevention program, being tested for HIV in the last 12 months, having lower number of clients and higher payment for one night sex were positively associated with condom utilization. Thus, developing and implementing target oriented behavioral change and communication strategies are needed to prevent the risk of acquiring HIV/AIDS and other sexually transmitted infections in female sex workers.

Keywords: Female sex worker, Condom utilization, sexually transmitted infections, Ethiopia
Age at First Sexual Initiation and Associated Factors among Debre Markos University Students, North West Ethiopia, 2014. Getachew Mulits*, Girmay Tsegaye*, Nurilign Abebe¹, Woldie Bogale², Tafari Tadesse², Desalegne Amare³, Girma Alem¹ ¹ Nursing department, Medicine and Health Sciences College, Debre Markos University, Debre Markos, Ethiopia ² Public Health Officer Department, Medicine and Health Sciences College, Debre Markos University, Debre Markos, Ethiopia ³ Midwifery Department, Medicine and Health Sciences College, Debre Markos University, Debre Markos, Ethiopia

Introduction: Sexual activities during adolescence have been characterized as dynamic and constantly changing, and it has an impact on reproductive life of young peoples, which is related to the increased susceptibility to HIV transmission, unwanted pregnancy and its complications when the sexual activities are unprotected.

Objective: To identify the age at sexual initiation and its associated factors among Debre Markos University students, northWest Ethiopia, 2014

Methodology: Institution based cross sectional study design was conducted among 273 Debre Markos university students. Study participants were selected by stratified sampling technique and self-administrated questionnaire was distributed to collect information. EpiData version 3.1 was used for data entry and SPSS version 16 was used for analysis. To identify factors associated with sexual initiation, bivariate and multivariate logistic regression with 95% Confidence interval was used.

Result: From 260 respondents, 116(44.6%) had sex prior to the data collection period, while 144(55.4%) had never had sexual intercourse. Almost two third (64.7%) of respondents start sexual intercourse during the age range of 16-19 years old. The mean and SD for the age at first sex was 18.28 and 2.04 years respectively. Factors which were significantly associated with early sexual initiation (< 18 years old) were; being female (AOR=5.7, 95%CI=1.16-27.72), lack of discussion sexual and reproductive health issues (SRH) with their mother (AOR=, 95%CI= 1.23-41.5) and cigarette smoking (AOR=7, 95%CI=1.06-46.92).

Conclusion and Recommendation: Early sexual initiation was high. So, awareness creation for both male and female young peoples through the use of religious leaders, school teachers and parents on sexual and reproductive health issues. Young peoples should be encouraged to discuss with their parents on SRH through the use of reproductive health centers and emphasis should be given for adolescents who use drugs like cigarette smoking.

Keywords: Early sex, Sexual initiation, Young people, Debre Markos University, Students
Assessment of Parent Adolescent Communication on Sexual and Reproductive Health Issues and Associated Factors in Alamata High School, Northern Ethiopia. Getachew Mulu, Bsc, Msc; Nurign Abebe, BSc, MPH, Nursing department, medicine and health science college, Debre Markos University, Debre Markos

Background: Adolescence is a period in which an individual undergoes major physical and psychological changes. Adolescence is a time of opportunity, but also one of risk. Parent-adolescent communication about sex is an important proximal reproductive health (RH) outcome. Young people are particularly vulnerable and are the key to the future course of the HIV/AIDS epidemic. They are an essential focus for prevention and control programs. Since most new infections are in young people, modest changes in behavior will have a significant impact on the epidemic.

Discussion about sexual and RH between adolescents and parents is important for the future life as adults. So the aim of this study is to assess parent adolescent communication on sexual and reproductive health issues and associated factors in Alamata High school, northern Ethiopia, 2013.

Methods: Cross sectional study design was conducted among Alamata high school students. The study population was all randomly selected regular adolescent students between the age of 10 to 19 years old attending academic learning at Alamata high school in the year 2013. A total of 488 adolescents were included in the study. They were selected using multistage sampling method followed by systematic random sampling technique. Data were collected using self-administered questionnaire and analyzed by SPSS version 16. Both bivariate and multivariate logistic regressions were used to determine statistical significance of association at P-value of 0.05 with 95% confidence interval.

Results/Findings: More than two-third of the participant (68.2%) had had communication with their parents on sexual and RH issues. Communication was 49 (14.7%) with mothers, 13 (3.9%) with fathers, 50 (15%) with brothers or sisters, 78 (23.4%) with the same sex, 19 (5.7%) with the opposite sex, 50 (15%) communicated with health personnel, 30 (9%) with boy or girl friends, 37 (11.1%) with teachers and 7 (2.1%) were with other family members respectively.

Factors associated with parent adolescent communication on sexual and RH issues were adolescents at grade 9 and 10 when compared with students at grade 11 & 12 (95% CI=2.2(1.08-4.46), students from urban origin (95%CI=3.21(1.61-6.39), paternal education of who could read and write and up to grade six educational status when compared with fathers who can’t read and write (95%CI=2.3(1.16-4.49), and (95%CI=4.1(1.63-10.01) respectively, parental occupation status of civil servant when compared with daily laborers (95% CI=5.34(1.72-16.58), Students attending church or mosque were 3.52 times more likely to communicate (95% CI=3.52 (1.27-9.79), and adolescents who have good knowledge on Sexual and RH (95% CI=1.7(1.01-2.78).

Conclusion and Recommendations: Educational grade status of adolescents, attendance of churches or mosque, previous residence, paternal education, paternal occupation and sexual and RH knowledge of adolescents were found significant factors. Therefore, adolescents from grade 11 and 12, those from rural origin and those less likely to attend their respective religious institutions should get due attention from parents, school community and other relevant stalk holders to increase their communication efficacy.

Keywords: Adolescent, communication, school, sexual, reproductive health
Prevalence of Premarital Sexual Practice and Associated Factors among Alamata High School and Preparatory School Adolescents, Northern Ethiopia, 2013. Getachew Mulu (BSc, MSc); Nursing department, medicine and health science college, Debre Markos University, Debre Markos; Nurilign Abebe (BSc, MPH), Nursing Department, Medicine and Health Science College, Debre Markos University, Debre Markos; S/r Emebet Berhane (RN, BSc, MSc), Addis Ababa University, Centralized school of Nursing, Addis Ababa.

Context: Sexual intercourse during adolescent period is unprotected and it has a lot of health risks and physical and psychological hazards. Meanwhile there is no study on the prevalence and associated factors of premarital sexual practice in the study area.

Aims: The aim of this study was to assess the prevalence of premarital sexual practice and associated factors among Alamata high school and preparatory school adolescents in 2013.

Settings and design: The study was conducted in Alamata, Tigray which is the northern Ethiopia. There is one high school and one preparatory school. The study design was cross sectional.

Methods and materials: All regular students attending their school in the year 2013 were included and multi stage sampling method was used. A total of 520 participants were included. Data were collected using self-administered questionnaire.

Statistical analysis used: Data entered using Epi Info version 3.5.1 analyzed using SPSS version 16. Descriptive, bivariate, and multivariate logistic regression analysis were used.

Result: A total of 493 participants give complete response. One hundred four (21.1%) of adolescent have had premarital sexual practice. Associated factors were age≥18 years (AOR=12, 95%CI=3.97, 36.54), urban resident (preventive) (AOR=0.23, 95%CI=0.07, 0.75), having a positive attitude towards premarital sex (AOR=3.07, 95%CI=1.19, 7.91), having a boy/girlfriend(AOR=3.33, 95%CI=1.39, 7.99), peer pressure (AOR=7.33, 95%CI=2.97, 18.09), and watching sex movies (AOR=7.98, 95%CI=2.55, 24.93).

Conclusion: Prevalence of premarital practice was high. Therefore, community and/or school health interventions are needed to reduce the premarital sexual practice among school adolescents to prevent sexually related health problems.

Key message: Late adolescents, rural resident and having boy/girlfriend need special attention in the reduction of premarital sexual practice.

Keywords: sexual practice, health related problems, Alamata, Adolescent
Reasons for premature removal of implanon among users in Arsi Zone, Oromia Region, Ethiopia, 2013. Abay Barnsie Adere, Adama Science and Technology University, Assela School of Health Sciences

**Background:** Ethiopian government is dedicated to expansion of implanon insertion service to meet the huge unmet need in family planning as of beginning of 2010. Nevertheless, opting for premature removal of implanon by the users is very rampant at this early stage of the initiative and hence reasons for the premature removal need to be identified for appropriate interventions.

**Objective:** to identify reasons for premature removal of implanon among users

**Method:** descriptive cross-sectional study was conducted from February 2012 to June 30, 2013 in Arsi Zone, South east Ethiopia. A total sample size of 103 was decided for data collection. Data were entered through Epi info version 3.5.3 and imported to SPSS version 16 software for cleaning and analysis. Numerical summary measures and probabilities were computed as found important. Kaplan Meier survival analysis and error bar were also employed for comparison of reasons for premature removal.

**Result:** with 97% response rate, the main reasons for premature removal of implanon among users were heavy/prolonged menstrual bleeding, plan to conceive in the near future, about to leave for abroad and pain on insertion arm representing 36%, 24%, 15% and 13% of the reasons, respectively. The median duration implanon used by the study participants was 19.5 months. Median duration of premature removal was significantly earlier in those who reasoned our heavy/prolonged menstrual bleeding compared with those presented with plan to conceive in the near future as their reason for premature removal.

**Conclusion and recommendation:** Heavy/prolonged menstrual bleeding was the dominant reason for premature removal of implanon and the duration of implanon use was not long enough to be cost effective. Hence, thorough pre-implanon insertion counseling on implanon side effects and revising effective management of heavy/prolonged bleeding are mandatory to sustain the initiative of implanon utilization as contraception.
Contraceptive Choice and Switching Pattern among Married Women in Rural Community of South East Ethiopia. Alem Gebrumariam, MPH, Adigrat University, College of Medicine and health sciences; Tolesa Bekele, MPH, Madawalabu University, College of Medicine and health sciences; Popelon Tura, MSc in Human Nutrition, Madawalabu University, College of Medicine and health sciences.

Background: Expanding access to long acting and permanent contraceptive methods has multiple benefits. They give women greater choice in selecting a contraceptive that meets their needs for delaying, spacing, or limiting pregnancy. They have the highest continuation rates of all family planning methods, and are more effective in actual use than short-acting methods for preventing unintended or closely spaced pregnancy. The purpose of this study was to ascertain the contraceptive knowledge, choice and switching pattern of married women in Agarfa District, Oromia, 2014.

Method: A community based cross-sectional study was conducted in Agarfa district. A total of 788 married women aged 15-49 years were involved in the survey. They were selected through systematic random sampling technique. The data were collected by using structured interviewer administered questionnaire, and analyzed by using SPSS version 21.

Result: The most ever known (98.5%) and ever used (81.5%) type of modern contraceptive was Depo-provera. Permanent methods were rarely recognized as contraceptive method. Three forth (75.9%) of the participants were on modern contraceptive during the interview time. Twenty nine percent of those who want to limit their birth were not taking any modern contraceptive (MC). Nearly half (45%) of the participants stated fear of side effect was their main reason for non use of MC. Thirty percent (29.4%) of the participants had history of method shift from one MC to other MC method. The highest shift was observed from pill to depo-provera (49.1%), followed by depo-provera to implants (26.7%).

Conclusion: Women's awareness and choice of contraceptives is limited to short acting methods. There is perceived fear of side effects of modern contraceptive. Women desiring no more children were not using any method. Therefore, strengthening the family planning (FP) counseling to address fears of side effects and increase client awareness of expected and unexpected side-effects of all methods is essential.
Determinants of Birth Interval among Women in Reproductive Age Group in Ethiopia. Tekike Yeneabat, Kelemu Tilahun, Tesfaldet Tekelab1Department of Midwifery, College of Medical and Health Science, Debre Markos University, Debre Markos, Ethiopia 2Departments of Public Health, College of Medical and Health Science, Wollega University, Nekemte, Ethiopia 1Departments of Nursing and midwifery, College of Medical and Health Science, Wollega University, Nekemte, Ethiopia

Background: Birth interval is one of the variables that determine a country’s fertility rate, where a fertility rate is a key indicator of population dynamics that determine the size and structure of the population of a country. The shorter the birth interval the higher the fertility will be. It is shown that short birth interval is associated with adverse effects on mother, fetal development, neonate, infant and childhood. Ethiopia has planned to reduce the total fertility rate from 7.7 children per women in 1990 to 4.0 per woman in 2015 where ensuring the optimum birth interval could be a means to achieve the desired goal and identification of underlying factors associated with short birth intervals is important to plan the actions tailored to ensure the optimum birth interval recommended by the World Health Organization.

Objective: This study was intended to identify determinants of birth spacing among child bearing age group women in Ethiopia.

Methodology: Secondary data analysis of 10482 reproductive age women included in the 2011 Ethiopian Demography and Health Survey of 2011 was conducted. Survival analysis using Kaplan Meier survival curve and Cox proportional hazards model was done from April to June 2014. Data on women having at least one live birth were considered.

Results: The median birth interval was 34 months. After adjustment for potential confounders, mothers having no education (AHR=1.67; 95% CI: 1.32, 2.12), being rural resident (AHR=1.13; 95%CI: 1.03, 1.25), sex of head of house hold being male (AHR=1.20; 95% CI: 1.13, 1.27), mothers who were poorest (AHR=1.26; 95% CI: 1.15, 1.39), poorer (AHR=1.22; 95% CI: 1.10, 1.36) and middle income (AHR=1.15; 95% CI: 1.04, 1.27) by their wealth status were associated with increased risk of short birth interval.

Conclusion: The birth interval in rural mothers was significantly lower than urban mothers. Mothers who have lower education (no or primary education), poorest and middle income by their wealth index and head of house hold being male were at increased risk of having short birth interval. Giving emphasis for women empowerment is crucial for mothers to have optimum birth interval.

Keywords: Birth interval, Cox Proportional hazard, Fertility
Magnitude of Domestic Violence and Associated Factors among Pregnant Women in Hulet Eiju Enessie District, Northwest Ethiopia. Tenaw Yimer, MPH 1, Tesfaye Gobena, PhD 2, Gudina Egaia, PhD 3 1Debre Markos University, Department of public health, Debre Markos, Ethiopia, 1Haramaya University, college of Medicine and health science, Harar, Ethiopia

Introduction: Domestic violence during pregnancy is higher in developing countries than Developed countries. It is one of the barriers to achieve MDG 3 due to its adverse health consequences. Comparable population-based data on the problem are lacking as existed literatures differ in time periods explored. Such discrepancies among study findings indicates the importance of site specific studies, especially in rural parts of our country, where little is known about the problem. Assessing the extent of problem also provides an insight for different stakeholders including health care providers to respond to the problem.

Objective: The aim of this study was to assess the magnitude of domestic violence and its associated factors among pregnant women in Hulet Eiju Enessie district, Northwest Ethiopia.

Methods and materials: Quantitative community based cross sectional study was carried out in the district from January 1 to 31, 2014. A total of 425 randomly selected pregnant women were involved in the study. A standard WHO multi country study on women’s health and domestic violence questionnaire was used for data collection. Four trained female data collectors were involved in the data collection. Odds ratio with 95%CI was estimated to identify predictors of domestic violence during pregnancy using multivariate Logistic regression. Statistical significance was declared at p-value ≤0.05.

Results: In this study, the prevalence of domestic violence during current pregnancy was 32.2%. The prevalence of psychological, sexual and physical violence was 24.9%, 14.8% and 11.3% respectively. Married women at the age of 15-19 years (compared to married <15 years) were 60% (AOR= 0.4, 95% CI 0.2-0.8) less likely to experience domestic violence during pregnancy. Whereas: Inter- parental exposure of domestic violence during childhood (AOR= 2.3, 95% CI 1.1 - 4.8), having frequently drinker partner (AOR=3.4, 95% CI 1.6 -7.4) and undesired pregnancy by partner (AOR= 6.2, 95% CI 3.2 -12.1) are the main significant factors that increases risk of domestic violence during pregnancy.

Conclusion and Recommendation: In this study, the prevalence of domestic violence during current pregnancy is high which may lead to a serious health consequence both on the mothers and on their foetus. Thus, targeted efforts should be made by all concerned stakeholders to reduce the problem in the study area.

Keywords: Domestic Violence, Pregnant Women, Hulet Eiju Enessie District, Ethiopia
Risky Sexual Behavior and Associated Factors among Grade 9-12 Students in Humera Secondary School, Western Zone of Tigray, NW Ethiopia, 2014.

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Introduction: About 1.7 billion people which is more than a quarter of the world's population were between the ages of 10 and 24, and 86% are living in less developed countries. The World Health Organization (WHO) defines adolescent people as those between the ages of 10 to 19 years. Across the life span, adolescence is the time of greatest risk taking. Even though, adolescent risk taking can derive them to development, it more results in experiencing risky sexual behavior like contracting sexual transmitted diseases and unwanted pregnancy than disease. This age category were highly predominant in secondary schools in which government attention is very crucial.

Objective: To assess, risky sexual behavior and associated factors among grade 9-12 students in Humera town, western zone of Tigray, NW Ethiopia.

Methodology: Institutional based cross-sectional study was conducted. Simple random sampling technique was used to select a sample of 422 participants. A structured, pretested and self-administered questionnaire was used to collect data. Collected data was entered and analyzed using SPSS version 16. Crude and adjusted odds ratio with its confidence interval was used as measure of association and to assure statistical significance.

Result: All of the respondent were included in the study. The overall prevalence of risky sexual behavior was 13.7% (95% CI: 10.6%, 16.8%) and it is predominant among the males. Factors like not living with family [AOR=3.22,95%CI:1.29-8.02], being male [AOR=17.17,95%CI:4.55-64.75], experiencing peer pressure [AOR=2.27, 95%CI:2.79-15.89] and not participating in any religious education [AOR=6.17, 95%CI: 2.24-17.16] were the factors that increase the odds of practicing risky sexual behavior and not exposed to pornographic movie is a factor that prevent [AOR=0.36,95%CI: 0.32-0.91] the odds of practicing risky sexual behavior among the students.

Conclusion: Considerable proportion of students were engaged in risky sexual behavior. Sex, participation in religious education, living with parents, peer pressure and looking pornographic movies were associated with risky sexual behavior. Any interventions that can affect the above risk factors may be helpful to protect adolescent's health in school.

Key: Risk Sexual behavior, Cross sectional study, High School Student
Premarital Sexual Practices and its Predictors among in-School Youths of Shendi Town, West Gojjam Zone, North Western Ethiopia. Alemayehu Bogale, MPH, College of Health and Medical Sciences, Haramaya University; Assefa Seme, MD, MPH, School of Public Health, College of Health Sciences, Addis Ababa University.

Background: Youth who begin early pre-marital sexual activity are more likely to be engaged in unsafe sex. Early sexual debut puts them at increased risk for acquiring or transmitting sexually transmitted infections, including HIV; and makes them highly vulnerable to unwanted pregnancy and its consequences. This study was conducted to assess premarital sexual practices and its predictors among in-school youths in North West Ethiopia.

Methods: A cross-sectional study was carried among 826 in school youths from January; 2012 to February; 2012 in Shendi town. A multistage sampling technique was used to select the study participants. Binary and multiple logistic regression analyses were performed to examine the relationship between premarital sexual practices and selected exposure variables.

Results: Nearly one fifth 157 (19%) of the participants reported having had premarital sexual intercourse, of which 91 (22.7%) were males and 66 (15.5%) were females. The mean (SD) age at first sexual intercourse was 16.48 (1.59) for males and 15.89 (1.68) for females. More than three - fourth of sexually active in-school youths engaged in premarital sexual relationship before celebrating their 18th birthday. Being greater than 20 years (AOR = 3.67; 95% CI = 1.98, 6.82), living with friends or relatives (AOR = 2.47; 95% CI = 1.46, 4.16), living alone (without parental control (AOR = 2.51; 95% CI = 1.38, 4.55) and watching pornographic movies (AOR = 1.73; 95% CI = 1.18, 2.53) were found to be significantly associated with premarital sexual practices.

Conclusion: A significant number of in-school youths had started premarital sexual activity that might predispose them to different sexual and reproductive health risks. Therefore, various efforts need to be initiated through school-based information, education, and behavioral change communication, interventions, such as life skills education and negotiation.
Prevalence of Early Marriage and its Consequences among Reproductive age Women in Bale zone, Ethiopia: a Cross Sectional Study. Daniel Bogale1,*, Desalegn Markos2, Muhammedawel Kaso1 1Department of Public Health, College of Medicine and Health Sciences, Mekelle University, Mekelle, Ethiopia 2Department of Nursing, College of Medicine and Health Sciences, Mekelle University, Mekelle, Ethiopia

Background: Ethiopia has one of the highest rates of early marriage in the world, with one in two girls marrying before her 18th birthday and one in five girls marrying before the age of 15. Failure to enroll in school or early dropout by teenage mothers affected obstetric care utilization, which in turn will exert direct impact on maternal health status and child survival. Therefore this study intended to assess the prevalence and consequences of early marriage in Bale zone.

Methods: A community based cross sectional study was conducted in Bale zone among 634 sampled reproductive age women. The sample was drawn from five randomly selected districts. Data were collected using pre-tested and structured questionnaire. Binary and multiple logistic regressions were done to explore factors determining early marriage. The associations between early marriage and each independent variable was estimated by odds ratio (OR) and 95% confidence interval (CI).

Result: The mean marital age was 17.05 (±2.8 SD). The prevalence of early marriage was 360 (58.7%). About two third, 67.7% of school attendants were dropped out school because of their marriage. More than half, 374 (61%) of the study subjects had no information about family planning during their marriage. As compared to those who attended grade 9 and above, those who did not attend school and grade 1-8 attending respondents were 6.81 (OR= 6.81 95% CI; 1.34-34.49) and 2.41 (OR= 6.81 95% CI; 1.29-4.51) times more likely to married early, respectively. Rural residents were 4.6 (OR= 4.6 95% CI; 1.80-11.74) times more likely to marry early than their urban counter parts.

Conclusion: This study revealed there is higher prevalence of early marriage in the study area. The more education a girl receives, the less likely she is to marry as a child.

Keywords: Early marriage, health consequences, education, family planning, Bale zone, Ethiopia
Sexual Violence in Bahir Dar; A Cross Sectional Institution Based Survey among Private College Female Students. Bizuygyn Shimekaw, MPH, Department of Preventive Care Package, Tulane International Ethiopia; Berihun Megabiaw, MD/MPH, Department of Epidemiology and Biostatistics, University of Gondar; Zelalem Alamrew, MPH, Department of Public health, Bahir Dar university.

Background: Despite the higher risk of victimization for young women, literature documenting the prevalence of sexual violence and its determinants among college students is scarce, particularly in the study area.

Objective: This study was undertaken to determine the prevalence and associated factors of sexual violence among female private college students in Bahir Dar, North West Ethiopia, in April 2012.

Methods: A cross sectional institution based survey using self administered questionnaire was conducted among female students selected randomly from each study year in April 2012. A total of 541 female students were involved in the study. Multiple logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals using SPSS statistical package.

Result: The study revealed that the prevalence of sexual violence in life time was 200 (37.3%). The response rate of the study was 99.1%. Those their child hood back ground were from rural (OR = 4.51, 95% CI: 1.67, 12.16), having drunken male or female classmate (OR=3.13, 95% CI: 1.09, 8.97), not discussing personal issue like reproductive health with parents (OR=4.36, 95% CI: 1.40, 13.56) were more likely to have sexual violence.

Conclusion and Recommendation: This study showed that sexual violence among private college female students is high. Sexual violence is associated with whose childhood residence was rural, having drunken friends (male or female), not discussing personal issue with parents. Therefore, it is recommended that sexual violence needs due attention and remedial action from policy makers, college officials, parents, students and other concerned bodies.
Assessment of Violence and Associated Factors among Rural High School Female Students, in Hadiya Zone, Southern Nation and Nationalities Peoples’ Region, Ethiopia; 2013. Taye Letta, BSC, MPH, Hosanna College of Health Science; Amsalu Feleke, Associate professor; Lemma Derseh, BS, MPH

The objective of this study is to assess violence and associated factors among rural high school female students in Hadiya zone, Ethiopia. A school based cross-sectional quantitative study was employed. Multistage sampling technique was used to select study subjects. Self administered questionnaires were used to collect the data and study was conducted on 801 rural high school female students in Hadiya Zone from March 25 to April 25/2013. The overall percentage of physical, sexual or psychological violence’s were found to be 62.20% during their high school education. Using alcohol by students and their parents, mother education were the risk factors for the occurrence of physical violence. Alcohol used by students and parents father education and marital status highly attributes to sexual violence. Alcohol used by student and mother occupation was variables associated to psychological violence.

This finding conclude that violence is highly prevalent among rural high school female students in Hadiya zone and use of alcohol, marital status, parental education and occupation were the main contributing factors. School officials and other concerned organizations should strengthen the communication with students, parents and community leaders about the physical, sexual and psychological violence.
Predictors of Modern Contraceptive Methods Utilization Among Married Women of Reproductive Age Groups in Western Ethiopia: A Community Based Cross Sectional Study. Tesfu Tedelet, MSc, Wollega University; Alemu Sofu, MPH; Desalegn Wirton, PhD

**Background:** Modern contraceptive prevalence rate of family planning in Ethiopia was very low which is 27% with total fertility rate of 4.8 and unmet need for family planning 25%. The current study identified factors associated with utilization of modern contraceptive methods among married women in Western Ethiopia.

**Methods:** A community based cross-sectional study design was employed from April 10 to April 25, 2014 among married women in the reproductive age group in Nekemte town. Multi-stage sampling procedure was used to select 1004 study participants. A pre-tested Structured questionnaire was used to collect data and high school completed data collectors were involved in the data collection process. Bivariate and multivariable logistic regression model was fit and statistical significance was determined through a 95% confidence level.

**Result:** The overall utilization of modern contraceptives in this study was found to be 71.9%. The common method of modern contraceptive used was injectable (60.3%). Age(AOR=2.00, 95%CI= 1.35-2.98), women’s education(AOR=2.50, 95%CI = 1.62 – 3.84), monthly income(AOR = 2.26, 95% CI: 1.24 – 4.10), respondents fertility desire(AOR =2.60, 95% CI = 1.48- 4.56), fertility related decision (AOR = 3.70, 95% CI: 2.45– 5.58) and having radio (AOR =1.93, 95% CI = 1.37- 2.71) showed significant positive association with utilization of modern contraceptive methods.

**Conclusion and Recommendation:** The finding of this study showed that women empowerment, fertility related discussion among couples and availability of media were found to be important factors influencing utilization of modern contraceptive. Thus policy makers and implementers should work on those factors to increase utilization of modern contraceptive methods.

**Keywords:** Modern contraceptive, associated factors, Nekemte town
Risky Sexual Practices among Private College Students: A Cross-Sectional Study at Central University College, Addis Ababa, Ethiopia. Abiyot Asrest1, Wubeshet Abebe2 1School of Public Health, Addis Ababa University 2Department of Health officer, Central University College, Lancia Campus

Background: Individuals engaged in risky sexual behavior are at risk for negative consequences such as sexually transmitted infections (STIs), Human Immunodeficiency virus and unwanted pregnancies. Such risky sexual practices are commonly experienced by adolescents and youths.

Objectives: to assess the magnitude and factors associated with risky sexual practices among regular students of the Lancia campus of Central University College

Methodology: Institution based cross sectional study was conducted among 197 regular students of the Lancia campus of Central University College, one of the pioneer private colleges in Ethiopia. Data were collected with pretested self administered structured questionnaire and processed on SPSS statistical software.

Result: Fifty four percent of the students are sexually active of whom 32.6% had risky sexual practices. The students are practicing a wide range of sexual practices, including having multiple sexual partners, having sex with commercial sex workers, with the same sex and other than vaginal route sexual intercourse. The person living with perceived parents’ economy, marital status, alcohol intake and age at first sexual debut are associated with risky sexual practices.

Conclusion and Recommendations: The majority of the students in private higher institutions are sexually active and practicing a wide range of risky sexual practices. The risky sexual practice is associated with the individual demographics and lifestyle, parents’ characteristics and school environment. Hence targeted intervention involving students, parents and school administration and in-depth qualitative studies are required to curb the prevailing risky practices.

Keywords: Risky sexual practice, unwanted pregnancy, adolescent, college students, Ethiopia
Magnitude of Female Genital Mutilation and Associated Birth Complications among Reproductive Age Women with First Birth in Basketo Special Woreda, SNNPR, Ethiopia. Legesse Ahera, B.SC in public health; Yohannis Dibaba, M.Sc, Assistant Professor, college of public health and medical sciences department of population and family health, Jimma university, Tsealach Alemu, B.SC, MPH/RH, college of public health and medical sciences department of population and family health, Jimma university.

Background: Female genital mutilation/cutting (FGM/C) is a harmful traditional practice that reflects deep-rooted gender inequality and represents a society's control over women. The practice of FGM, in one form or another, continues to exist in around 40 countries of the world. It is associated with different kinds of health problems. Complications during delivery are among the long-term complications.

Objectives: The objective of this study was to assess the magnitude of FGM and associated birth complications among women of reproductive age groups with first birth within the last five years in Basketo special woreda from March 10-22/2014.

Methods and materials: A community-based cross-sectional survey using a multistage sampling technique was employed. Study subjects were randomly selected from reproductive age women with first birth within the last five years before survey. A total of 756 women were included. Collected data was analyzed using computer software SPSS version 16.0. Frequency tables, graphs, and descriptive summaries were used to describe the study variables. Both bivariate and multivariate logistic regression analysis (P-value < 0.05, AOR with 95% CI) was used to see association and significance of association between outcome and predictor variables.

Result: Of the total 756 respondents interviewed, 276 (36.5%) of respondents were Circumcised while 480 (63.5%) were not circumcised. On multivariate logistic regression religion, ethnicity, parent education, occupation, wealth, and residence had statistically significant relation with the Practices of female circumcision. Circumcised women developed complications 1.710(1.252-2.334) times higher than uncircumcised one.

Conclusion and Recommendation: Female circumcision still exists in Basketo woreda, in spite of the government efforts to abandon the practice. The practice of FGM/C was higher among non-Basketo ethnic group. Circumcised women have also a risk to develop complications during birth. Therefore, focus should be given to education of women, empowering status of women, and create awareness about the effect of FGM/C on birth out come by involving religious leader with special attention to rural area.

Keywords: Female genital mutilation, circumcision, birth complication
Differentials of pregnancy before the age of 17 years in 2000 and 2005 in Ethiopia. Wubegeir Mekonnen (PhD), School of Public Health, College of Health Sciences, Addis Ababa University.

Background: Early marriage is very common in Ethiopia with the median age at first marriage among women aged 25 to 49 years being 16.1 years as shown in the 2005 EDHS. The revision of the family code requires its universal acceptance and practice in all Ethiopian communities to improve the status of women in the country. However, the EDHS reported that most women married earlier than the minimum legal age at first marriage. Pregnancies to a girl child before the age of 20 years deter the growth of the mother into full adulthood. Early pregnancy before girls’ physiological maturity could damage their reproductive and excretal organs, increased prenatal and maternal mortality in communities where there was low coverage of maternal and child health services.

Objectives: The aim of this study is to assess differentials of pregnancy before teenagers celebrate their 17th birthday in Ethiopia.

Methods: The EDHS datasets of 2000 and 2005 were used. A composite binary outcome variable on first pregnancy before the age of 17 years was generated by considering women aged 20-29 years who had pregnancies regardless of the outcome. Background characteristics included in this study were categorical. Percentage of pregnancy before age 17 by background characteristics of women aged 20-29 years with their 95% confidence interval were assessed. Statistical significant difference in percentage of teenage pregnancy was considered if the confidence intervals never cross to one another. Moreover, the association of different background characteristics with teenage pregnancy in 2000 and 2005 was checked using bivariate and multivariate binary logistic regression. Statistical significance of the odds of teenage pregnancy across categories of variables was ascertained using 95% confidence intervals.

Results: Pregnancy before the age of 17 years among women aged 20-29 years significantly increased from 24.4% (22.5, 26.5) to 30.8% (28.7, 32.9) within the inter-survey period. The increase in teenage pregnancy between the two survey years was statistically significant among younger women of current age group 25-29 years, practiced sex for 5 plus years, married before puberty, non-educated, rural residents, unemployed, currently married, followers of other religions than the Ethiopian Orthodox Christianity and did not have daily access to electronic media.

Moreover, multivariate analysis showed pregnancy before age 17 was significantly higher among women of current age group 25-29 years, those experiencing sex for 5 or more years, married before their 15th birthday, attained secondary plus level of education, currently married and belong to the Gurageh nationals compared to counterparts.

Recommendations: Reproductive health services including family planning awareness creation and utilization should be more accessible to younger, recently married, uneducated and religious women. More aggressive measures should be taken on the implementation of increasing the age at first marriage to 18 years particularly among rural residents in the country. In addition to enhancing girls’ enrollment in secondary schools, the government of Ethiopia should scale-up adult education programs for out of school women with more emphasis on reproductive health issues in the curriculum. Mechanisms should also be put in place to lower the prices of electronic media technologies to make them more accessible to the poor rural residents. Furthermore, the public should be made aware on the adverse outcomes of early marriage and teenage pregnancy by involving religious and community leaders.
Changing How Youth Peer Educators Promote Behavior Change: The Case of The Pathways to Change Game. Bekele Ababeye, MSc

Significance/background: Effective prevention of sexual reproductive health (SRH) problems among the youth depends consciously changing their behaviors. In this regard, interventions are often centered on information provision, despite the knowledge that information provision does not always translate into practice. Other important barriers and facilitators to behavior change are often unidentified and unaddressed.

Program intervention/activity tested: Pathfinder International introduced a tool called Pathways to Change (PtC), methodology that uses a game played in small groups to help players identify barriers and facilitators of behavior change. Experiences with this method in Burundi, Mozambique, Uganda and elsewhere demonstrate that it leads health promoters (peer educators, community health workers etc.) to move away from mere information provision to genuine reflection on, and response to, the barriers and facilitators of behavior change to promote health and prevent diseases among the youth.

Methodology (location, setting, data source, time frame, intended beneficiaries, participant size, evaluation approach): In Ethiopia, Pathfinder piloted the PtC by training youth peer educators affiliated with youth friendly services in five selected learning centers located in five districts. With this method, peer educators learned to identify concrete barriers to and facilitators of healthy SRH behaviors, including those relating to family planning. In the four months after the training, 135 youth peer educators (15-29 years) began using the knowledge and skill gained through the methodology to prepare fictional narratives and counseling sessions for their peers covering topics on prevention of unwanted pregnancy, correct and consistent use of condoms, emergency contraception, and other family planning choices. Monitoring and direct observation showed that most peer educators trained with PtC targeted behavioral barriers and facilitators identified during the PtC game during peer-to-peer interactions and outreach community activities. Additionally, small group education within-school and out-of-school youth and peer education have been conducted based on these barriers and facilitators identified using the methodology, moving away from the previous approach that was based on only on information provision.

Results/key findings: Pathways to Change appear effective in ensuring that behavior, rather than information, becomes the focus of behavioral interventions. The PtC game helps to reflect on behavioral priorities as individuals and small groups by mitigating barrier and facilitators of change identified through the method. Experience in using PtC has raised an important question: does PtC achieve its effect by influencing the thinking and health promotion behaviors of the peer educators themselves? Does the real power of the methodology lie in the possibility that behavior change promoters come to understand their job in a fundamentally different way? In other words are health promoters themselves the first, and possibly most important, audience of the PtC? Research is undergoing to answer these questions.

Program implications/lessons: As a result of our impression that PtC works by changing the way health promoters think and work, we are currently conducting research on how peer educators see their job—and more importantly, perform their job—before and after training in the PtC methodology. Our research design is a cross-sectional survey involving FGD with targeted peer educators in five youth friendly service sites and Tigray, Amhara, Oromia and SNNP regions of Ethiopia.

Introduction: Unintended and mistimed pregnancies are extremely common event for many women especially in developing countries. The World Health Organization (WHO) has estimated that every year unintended pregnancy leads to at least 20 million unsafe abortion resulting is death of some 80,000 women. Despite surprising technological advancements in modern contraception methods still unintended pregnancy is a worldwide problem. In developing countries of the 182 million pregnancies occurring every year, an estimated 36% are unplanned, and 20% end in abortion. Ethiopian Demographic and Health Survey of 2010 revealed three in every ten currently married women (29 percent) are using a method of contraception, mostly modern methods (27 percent).

Objective: To assess Family planning use and its associated factors among women seeking abortion care in Harar health facilities, Harar town, Eastern Ethiopia from January to February 2013.

Methodology: A facility based quantitative descriptive cross - sectional study was conducted. By considering 69.1% proportion of abortion clients ever used contraception, 360 women of reproductive age group was included in the study. Multi stage sampling technique was used to select sampling units. The data were collected using pre-tested interview guided semi-structured questionnaire. Data were edited and entered onto Epi data version 3.1 and SPSS version 16.0 software and analysed by Univariate analyses and Multivariable Logistic regression.

Result and discussion: Current abortion was intended by nearly 58 % of the women. Nearly, 44% of abortion care attendants have used some form of family planning prior to the index pregnancy, of these 40% used injectable form of contraceptives. Among women who have used pills, 60% complained they become pregnant while using the method due to missing dose. About 53% of condom users claimed similar reason as they became pregnant while using condom. Less proportion of the women will intended to use the injectable form of family planning after termination of their index pregnancy in spite of their high level of contraceptive awareness. In this study being rural resident were less likely to use family planning during the index pregnancy (COR= 0.36, 95%CI (0.23, 0.57)). In regards to women's age group 21-25 (COR= 2.63; 95%CI (1.46, 4.76)), 26-35(COR= 4.06; 95%CI (2.19, 7.55)), orthodox religion (COR=2.02; 95% CI (1.26, 3.24)) were more likely to use family planning. Those women who didn’t discuss about family planning with their husband were less like to use family planning (COR=0.107; 95%CI ((0.066, 0.175)).

Conclusions and Recommendations: Nearly, 44% of abortion care attendants have used some form of family planning prior to the index pregnancy. Residence, attitude of the husband towards the family planning use, age of the mothers, orthodox religion and family size was found as some of the factors influencing a family planning use. Government and Non-Government bodies should work in collaboration to minimize unsafe abortion and curb problems associated with abortion.

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Introduction: Most (60%) of maternal and newborn mortality occur during labor, delivery and immediately after birth. Skilled Birth Attendants (SBAs) at health facilities significantly reduces the death toll of mothers and newborns. Male partners are the gate keeper for families including for health service uptake. However, male partners’ involvement in deciding their spouses’ place of delivery and factors that affect their involvement was not studied adequately in the Ethiopian context.

Objective: Assess male partners’ involvement in deciding their spouses’ place of delivery and identify factors associated with it in TiyoWoreda of Arsi Zone, Ethiopia

Methodology: A community-based cross-sectional study was conducted in January to February 2012. The study employed quantitative and qualitative methods. Eight Kebeles were selected from the Woreda using simple random sampling method; households with male-partnered women who delivered within 12 months prior to the survey were identified. Male partners aged 18 years or more were interviewed using an interviewer-administered questionnaire. Quantitative data were entered into SPSS version 20 after cleaning and analyzed. Separate male and female focus group discussions were conducted in the study area. Qualitative data was analyzed using open code software package version 3.6.2.0 and presented contextually. Ethical clearance was obtained from Oromia Regional Health Bureau.

Results: A total of 999 adult male partners were included in quantitative study with 100% response rate. The median age was 34 years (IQR: 28 to 40 years). The majorities were farmers (93.4%), had formal education (84.6%), married (74.4%) and belong to Oromo (81.4%) nation.

One –fourth (26.2%) of respondents’ spouse gave their last birth at health facility.

A total of 48(24 female) adults were involved in FGD (3 with male and 3 with female groups separately) where two- third (68%) of males were farmers with formal education while most (84.1%) of females had formal education.

Most (90.4%) of male partners in the quantitative study were involved in deciding the place of their spouses’ delivery in the last pregnancy. The level of involvement is much higher among respondents whose spouse delivered at health facility (96.4%) compared to those whose spouse delivered at home (88.7%).

The odds of male involvement among women with joint partners’ source of income, joint decision making on ANC service uptake, history of previous health facility delivery, radio and tape-recorder ownership and reside within one hour of walking distance from the nearest health facility were significantly higher than those without these characteristics (OR (95%CI)=4.6 (1.57-13.3)), (OR (95%CI)= 3.3 (1.36-8.25)), (OR(95%CI)=2.0 (1.05-3.88)) , (OR (95%CI)=2.4(1.12-5.26)), and (OR (95%CI)=2.5,(1.21-5.04)) respectively.

Cultural beliefs and lack of privacy at health facility were found to be affecting skilled birth attendance negatively.
Conclusion & recommendation: High proportion of male partners involved in deciding place of delivery both at health facility and at home. Families with economically empowered women have high proportion of male involvement.

Health education tailored to and targeting male partners should be strengthened. Cultural sensitivity, privacy and partner involvement should be give due emphasis at health facility.
Projecting Ethiopian Demographics from 2012–2050 using the Spectrum Suite of Model: Dem Proj. Alemayhu Bekele, MPH, Program Coordinator; Yihunie Lakew, MSc in Population Studies, Program Coordinator; Ethiopian Public Health Association

Introduction: Until the 1980s, Ethiopia had no mechanism to accurately estimate its population size. The first national census was conducted in 1984 and estimated the total population to be 42.6 million. Subsequent censuses estimated 53.5 million (1994) and 73.5 million (2007), while the 2012 Inter-Censal Population Survey estimated 83.7 million. This analysis, conducted by the Ethiopian Public Health Association (EPHA) and the USAID-funded Health Policy Project (HPP), aims to generate useful demographic information for policymakers and development experts in Ethiopia for health, population and other sectors planning and program design.

Methods and Assumptions: The Demographic Projection (DemProj) module with medium variant projection of the Spectrum suite of models was used to project the size of the Ethiopian population from 2012 to 2050. The base year population was taken from the 2012 Inter-Censal Population Survey. Other projection parameters were taken from the United Nations Population Division’s World Population Prospects (2012 revision) medium variant scenario.

Results: The total fertility rate (TFR) declined from 4.6 in 2012 to 3.1 in 2032 and then to 1.8 in 2050. The projected Ethiopian population steadily increased from 83.7 million in 2012 to 133.5 million in 2032 and 171.8 million in 2050, with a doubling time of 83 years in 2050. The rate of natural increase decreased from 1.9 percent in 2012 to 0.8 percent in 2050. The crude birth and death rates in 2012 were 34.6 and 9.7 per 1,000 people, and were projected to decline to 14.7 and 6.4 per 1,000 in 2050. The 0–14 age group declined after 2030, while the working-age population (ages 15–64) and older age groups (age 65+) continued to increase. Ethiopia’s window for capturing a possible demographic dividend was projected to peak around 2040.

Conclusions and Recommendations: A decreasing trend in fertility, population size, deaths and births was observed. Access to reproductive health and family planning services should be strengthened and sustained to achieve the projection. Opportunities should be created for the projected demographic dividend in Ethiopia. Investments in health, education, and other development sectors are needed to address the population projected in the years to come.
Family Planning Commodities Requirement in Achieving Replacement Level Fertility in Ethiopia. Amanuel Alemu, M.PH., College of Health Science and Medicine, Debre Markos University, Abebaw Andarge, M.Sc. & M.A., College of Social Science and Humanities, Debre Markos University.

Background: Ensuring the availability of modern contraceptive methods both by type and quantity is crucial in the provision of quality family planning services. This helps in reducing maternal and child mortality. To date, there has been little evidence regarding family planning commodities requirement including their potential cost. In Ethiopia, a 50% funding gap was pointed as a predicament against the government’s ambition of ensuring commodity security. Hence, projections for family planning requirements can help set realistic goals, plan for the service expansion required to meet program objectives and evaluate alternative methods of achieving goals. This analysis therefore, is designed to make family planning commodities requirement projection based on various assumptions with the target of achieving replacement level fertility by 2020 and also estimate costs of family planning commodities.

Methods: Baseline data were obtained from 2007 census reports, 2011 Ethiopian Demographic and Health Survey and model data for Ethiopian context. Primary outcomes of the projection included contraceptive prevalence rate, number of users and acceptors per methods, commodity requirement and associated costs. The spectrum suite FamPlan model was used to analyze these outcomes. The analysis was restricted to the time period 2011–2020.

Results: The findings of the analysis showed that the 2011 CPR of 29% will therefore need to increase to 71% to attain the replacement-level fertility of 2 by 2020. In order to reduce fertility rate, users of contraceptives should also increase accordingly. Based on this projection, about 11.5 million women of reproductive age group are expected to use family planning methods by 2020. The number of reproductive age women accepting long-acting and permanent family planning methods is estimated to increase by 3 million women by 2020. This also indicated a significant shift of methods from short to long-acting family planning commodities. There will be an increasing demand for contraceptives and an increasing requirement for government and donor funds for contraceptive procurement needs that amounts additional budget of ETB 42.7 billion from 2011.

Conclusion and Recommendation: More family planning commodities are required to increase the current contraceptive prevalence rate of 29% (EDHS, 2011) to 71% in turn to achieving a replacement level-fertility by 2020. Hence, all stakeholders should look for resources and strengthen capacity towards increasing access and availability of family planning commodities in terms of both method mix and quality.
Projection of Family Planning Service in Ethiopia – 2011 to 2035: Considering Reaching CPR 74.4% BY 2035. Biniam Getachew, BS, MPH, Ethiopian Society of Obstetricians and Gynecologists; Zelalem Birhanu, BS, MPH, Department of Reproductive Health, Institute of Public health, the University of Gondar.

Introduction: Ethiopia’s population size has doubled five and half times from 11.5 million in 1900 to 74 million in 2007. The population doubling time currently is estimated to be of 23 years. This indicate, Total Fertility Rate (TFR) is still high, implying further rapid population growth in the years ahead which requires quite a streamlined activity to increase the Contraceptive Prevalence Rate (CPR) of the country. Over the last 15 years, the Federal Ministry of Health (FMOH) has made unreserved efforts to expand access to family planning information and a range of family planning method options. Taking this into consideration, FMOH vision is to reach 74.4% of CPR by 2035. The main objective of this analysis focus on providing a set of data that can guide policy makers.

Methods: This projection is based on Ethiopia Demographic and Health Survey (EDHS) 2011. The analysis was performed using SPECTRUM suit 4 model. The FamPlan module in Spectrum model was used to analysis the projection. The goal of increasing contraceptive prevalence to 74.4% by 2035 was considered for the projection and some of the assumption was taken from World Population Prospect. This projection is only as good as if the assumption made is maintained. Outputs of this projection includes contraceptive prevalence rate, total fertility rate, contraceptive users & acceptors, contraceptive commodities and impact of family planning on IMR and U5MR.

Results: To meet FMOH goal of CPR 74.4% by 2035, the trend of CPR need to be 47.5% by 2020, 56.9% by 2025 and 66.1% by 2030. One of the effects of increasing CPR is lowering TFR. It can be seen in the projection that the effect of achieving CPR 74.4% by 2035 will decrease TFR to be 1.5 at the end of 2035. In order to achieve CPR goal of 74.4%, around 16.5 million women of reproductive age need to be recruited by 2035 among which 4.6 million needs to be new acceptor. By the end of 2035, family planning commodities supply will reach 9.7 million, 13 million, 1.8 million, 2.7 million 4.9 million and 18,922 of Condoms, Injectable, IUCD, Implants, Pills and Female sterilization, respectively. This projection also demonstrate the decline of infant and <5 mortality rate as CPR goes higher, which make both to be below 1 per 1,000 birth.

Conclusions and Recommendations: Ethiopia’s government vision of reaching CPR 74.4% seems to be realistic when consider different countries experience. Ministry of Health need to strength contraceptive logistic system and monitoring & evaluation mechanisms of contraceptive to achieve the goal.
Reaching Replacement level Fertility Rate by 2020: Costs and Implications in Amhara region, Northwest Ethiopia.  
Helina Alemu, MSc, Amhara Regional Health Bureau; Gizachew Assefa, MPH

Introduction: Family planning is one of the most successful development interventions of the past 50 years. It is unique in its range of potential benefits, encompassing economic development, maternal and child health, educational advances, and women’s empowerment. Replacement level fertility is defined as a TFR of 2.1 children per woman. Reaching a goal of replacement fertility needs a huge investment in the areas of family planning. The impact of high fertility on other outcomes could be channeled through implications for the natural environment, budgets and economic productivity.

Aim of the projection: This Famplan projection is aimed to assess different implications of reaching Replacement level Fertility Rate by 2020 in Amhara region.

Methods and assumptions: The Famplan module of the SPECTRUM suite software developed by Health Policy Project (HPP) was undertaken for the current analysis. The data were collected from different areas. The TFR and the contraceptive Prevalence rate (CPR) for Amhara region by 2011 was taken from EDHS 2011 report. Moreover, since data on infant mortality rate, under five mortality rate, and method mix were lacking for the regional basis, we have considered the national estimation. The baseline and 2020 projected population for the region were received from the Amhara BOFED.

Result: In order to reach the replacement fertility level, the CPR by 2020 would be about 66%, the region would need higher in terms of injectable (from the current 2699539 to 7255444 acceptors by 2020) and oral contraceptive pills (from the current 1022061 to 2746954 acceptors by 2020). The gross cost needed for securing contraceptive methods will sharply increase in reaching the replacement level fertility rate. Reaching a fertility rate of 2.1 by 2020 would reduce the U5MR (88-24) and IMR (59-17) per 1,000 live births significantly. When the clients use the family planning the unintended pregnancy decreased (from the current 280549 to 69869 by 2020).

Conclusion and recommendations: The targets and plans for 2020 would help meeting replacement fertility by 2020. Lower fertility as low as replacement fertility can significantly reduce the under-five and infant mortality in the region. Reaching the goal of replacement fertility in Amhara region needs a sustainable increment in Contraceptive prevalence rate. Hence, in meeting this higher prevalence, the regional health bureau shall emphasize in recruiting new users in addition to improving the quality of service in maintaining those who are already in the program. The Family Planning commodities requirements in the region should also be given a priority.
Using Integrated Multimedia Intervention as a Key Strategy for Promoting Sexual Reproductive Health (SRH) Issues: Experience of Integrated Family Health Program (IFHP) in Ethiopia. Solomon Abebe, MA, Communications Manager for the Integrated Family Health Program (IFHP); Ethiopia, Mengistu Asnake, MD, MPH, Chief of Party for the Integrated Family Health Program (IFHP).

Significance/Background: Ethiopia, being one of the least developed countries, its people suffers from many health problems of Sexual Reproductive Health (SRH). It has been documented that that the major determinants of good or ill health of people are the knowledge they may have about health, beliefs, attitude and practice and the desire to bring about positive behavior change in their life. In addition, lack of health oriented media professionals and health communicators were one of the challenges to reach the target audience strategically.

In response to the problem, Integrated Family Health Program (IFHP) in collaboration with local media houses implemented integrated multimedia intervention on SRH issues for helping people to get the right health information and education so as to empower them to make informed choices regarding their health and the health of their families.

Program Intervention/Activity Tested: From November 2012 to October 2014 integrated multimedia intervention strategy was implemented for addressing SRH issues in reaching IFHP Intervention areas of Oromia, Amhara, SNNPR and Tigray.

Initially, IFHP in collaboration with government organizations, developed integrated multimedia intervention strategy for addressing Sexual and Reproductive Health (SRH) issues in its four major regions. The program address multiple contexts that increase the dissemination of SRH issues for persuading decision makers to give attention for SRH issues in the country, the intervention consist of targeting high level decision makers through print and electronic media.

Quarterly media training program focused on addressing on SRH issues established in Amhara, Oromia, Tigray, and SNNP regional states. The training mainly focused on introducing core family health themes, messages and approaches of dissemination, information gathering tactics, message development and dissemination skills. Media agencies participating in the trainings and review meetings were drawn from the education media centers, zonal communication offices, Government Communication Affairs Office(GCAO), Regional Mass media Agency (comprising, TV, Radio, FM and Print Media), and Ethiopian News Agency. The media training followed by regular quarterly media review meeting forum focuses on exchanging updates, performances and challenges.

In addition, IFHP in collaboration with the Federal Ministry of Health (FMoH), and GCAO conducted national media training for media managers to increase their Knowledge of SRH and improve the health practices.

Method: Data collected from 20 purposefully selected media managers and 20 randomly selected journalists and 9 purposefully selected GCAO, Regional Health Bureau and IFHP staff. Data also collected from Federal and Regional government office performance reports. In addition, secondary data analysis and key informant interview were employed to gather the necessary data.

Results/Key findings: After the initial program intervention, more than 320 media personnel's received comprehensive media training on SRH and 8 different media review meeting conducted in the IFHP
intervention sites. In connection with the training regional media agencies have produced and aired more than 500 educational programs on SRH and other health issues focusing on Family Planning (FP), HIV/AIDS, Malaria, Hygiene and Sanitation, and Adolescence and Youth Reproductive Health (AYRH) through spots, programs, documentations, and different stories. The media agencies employed structured Focus Group Discussions (FGDs), manual revisions, pathways to change methods and in depth interview technique for collecting information. Students, youth, teachers, families, decision makers and the general communities were effectively addressed by the programs.

Federal, Regional and zonal communication and Health offices started to integrate the following SRH and health issues in their annual plan: Maternal and Child Health (MNCH), Nutrition, Harmful Traditional Practices (HTPs), HIV, Health Insurance, the 16 Health Extension Program (HEP) packages.

Furthermore, more than 60 Health Communicators and Public Relation Officers drawn from various government agencies received 5 days training focused on addressing SRH issues for reaching communities and high level decision makers.

In addition all regional GCAO in collaboration with regional health bureau and IFHP organized 16 press conferences, 439 articles focused on SRH issues published on their regular magazines; produced 20,000 leaflets and brochures focused on SRH issues; more than 16 documentary films produced and disseminated; and facilitated more than 1000 news coverage at the regional level.

Program Implications/lessons: To successfully address SRH issues and to bring about the desired change in the community, it is necessary to implement integrated multimedia intervention strategy within the Ethiopian context that take into consideration of political, cultural, economic and traditional factors of the society. Integrated multimedia communication approach will mark a major step towards increasing health impacts of SRH issues; effectively disseminate information to the desired target audience.

A well designed multimedia intervention is the most effective alternative to attain a relatively sustainable Behavior Change, shift in people's practices and attitudes may bring about an overall improve in the health status of the communities and there by the country.
The Effectiveness of Newspaper towards Influencing Behavior Change of Taxi Community in Addis Ababa: The Case of “Sechento” Newspaper.

Enatalem Meles, M.A., Ethiopian Broadcasting Corporate(EBC); Solomon Abebe, M.A., Integrated Family Health Program(IFHP).

Background: Addis Ababa transport authority reported that the Addis Ababa taxi community members were estimated to be 28,000 which comprised of taxi drivers, assistants and inspectors. In line with this, drug and alcohol consumption was widely practiced, 81.8% of taxi drivers and assistants chew qhat regularly and 40% of them consumed alcohol daily which led to unexpected sexual encounters and unsafe sex practices. They had limited knowledge, only 32.9% had comprehensive knowledge about HIV, significant amount 62.6% had one or more misconception on HIV/AIDS.

The study focused on assessing the effectiveness of “Sechento” newspaper towards influencing behavior change of Taxi Community in Addis Ababa. It also aimed at investigating the satisfaction level, healthcare-seeking behaviors, demand for information on HIV and AIDS, change of attitudes toward safer sexual practices and socio-demographic determinants of provided knowledge about HIV/AIDS prevention Communication strategies.

Method: To achieve the objectives of the study in question, 388 randomly selected taxi communities and 24 purposefully selected peer leaders, editors and program coordinators participated in the study. Thus, a total of 412 participants involved in the study. Different data collection instruments (questionnaire, interview and focus group discussion) were employed to gather the necessary data. Quantitative data were processed in SPSS v.15.00 statistical software. Taped qualitative data were transcribed, translated into English, and manually analyzed by grouping into predetermined thematic areas.

Result: The result of the study showed that the satisfaction level of the Taxi community on HIV/AIDS service provided by “Sechento” newspaper is high. Demand for information among taxi communities in HIV prevention found to be high. The perception of risk or change of attitudes toward safer sexual practices was also high. The likelihood of knowledge provided about HIV/AIDS by “Sechento” was higher among educated than non-educated (OR=2.83(1.02-7.85 CI 95%)). The odds of getting knowledge from “Sechento” Newspaper is higher among communities who have income above 500 (OR= 5.82(1.31-25.71; 95% CI) . Knowledge provided by “Sechento” newspaper was higher among Taxi communities who have relatives living with HIV/AIDS (OR.36(.13-.99);95%CI). Knowledge provided about HIV/AIDS by “Sechento” was higher among taxi communities who lost their friends due to HIV/AIDS than those with no such experience(OR=.44(.16-1.23 CI 95%)). Lack of permanent financial resources was found to be impediment for the progress of the newspaper. Majority of the respondents preferred radio as source of getting information. The Majority of respondents did not use HIV/AIDS messages due to lack of knowledge.

Recommendations: Integrated communication strategies, adequate community conversation and culture based communication strategies on HIV/AIDS were recommended.
Baseline Survey on Family Planning Services Utilization in Western Oromia Region, Ethiopia. Setegn Tegatu, MPH, Senior Research & Training Officer; Awel Seid, MPH/RH, RH & Research Officer; Birut Sine, MPH, RH & Research Officer; Ethiopian Public Health Association, Addis Ababa; et al.

Introduction: With financial support from Packard Foundation, and in collaboration with Amhara, and the Southern Nations, Nationalities and People (SNNP) regional Health Bureaus, Ethiopian Public Health Association (EPHA) has been supporting the health extension program (HEP) to expand access to quality reproductive health/family planning services for men and women including young people. Currently EPHA has developed a project to expand long acting family planning in Oromia region and is being implementing it in collaboration with Federal Ministry of Health. Therefore, the project needs baseline information for measuring the achievements with respect to the change in the level of utilization of different family planning methods; improvement of the challenges to provide the services; facilitation in the exchange of information between service providers; etc.

Objective: Assess the utilization of family planning services in five zones of Oromia region namely West Shewa, Jimma, East Wollega, West Wollega and Illubabor

Methods: The study was conducted in the community/household, health facilities, health bureaus, and in Midwifery/Nursing training institutions with cross-sectional study design with both quantitative and qualitative methods. Using multistage sampling techniques 1354 married women in the reproductive age were included. Heads of each health facilities, family planning service providers, college deans, and health extension workers were also sources of information for the qualitative part. Odds ratio and 95% confidence intervals were computed to assess the magnitude and significance of associations. A thematic content analysis approach focusing on the study questions was used for the qualitative analysis.

Findings: A total of 1352 married women replied to the questionnaire. Majority (96.8%) of the respondents had ever been pregnant at least once in their life; 176 (13.5%) had faced abortion and more than two-third (67.9%) had one under 5 child. The findings confirmed that 625 (46.2%) of the participants were not knowledgeable on family planning. Majority (71.4%) of the women in the study areas reported that they have ever used a family planning method once in their life and 59.3% of respondents are using the FP method currently. Age of respondents, religious pressure, zonal division, level of education and occupation of respondents, misconceptions and beliefs in the community and level of counseling were factors associated with utilization of family planning.

Conclusion: Utilization of family planning services in the study zones is higher than ever in the history of the country. The issue of availability of the services is not a big problem in the study zones. However there is absorbable counseling and service delivery skill gaps.

Recommendations: Need to maintain the initiation existing in the zones and improve the skill of HEWs including enabling them to provide counseling properly and perform insertion and removal of FP methods.
Prevalence and Associated Factors of Under Nutrition among Under Five Children who Visited Pediatrics OPD in Hiwot Fana Hospital, Harar, July 2014. Aklila Abrham, MSc; Lecturer, Haramaya University

Introduction: malnutrition is highly prevalent and causing sense health problem of Ethiopia and carries the heaviest burden of morbidity and mortality of children less than five years. In Ethiopia, the prevalence and under weight is 44%, 10%, and 29% respectively according to EDHS 2011.

Objectives: 1. To determine the prevalence of stunting, wasting and underweight among under five children in Hiwot Fana Hospital, pediatric OPD.
2. To investigate factors associated with under nutrition in under five children in Hiwot Fana hospital, pediatric OPD.

Methodology:
Study area and period: Harar is located 526 KM east of AA. Hiwot Fana hospital was established during Italian occupation of Ethiopia (1928-1933 E.C) to serve Italian soldiers. The study was carried from December 2013-July 2014.

Study design: hospital based descriptive cross sectional study was conducted.

Study population: all under five children who visited pediatrics OPD for any illness/reason.

Sample size: by using single population proportion formula (95% CI, d=5%) and from 3 P values that can give large sample size was taken and the sample size was 416.

Method of analysis: The data was entered in EPI Info version 3.5.1 and analyzed by using SPSS version 16.0 statistical packages. Frequencies and percentages, graphs, and charts were used to describe the results. Logistic regression analysis (bi-variate and multi-variate) and odds ratio were used to check association between dependent and independent variables.

Result: The study included the total of 416 children with 100% response rate. Out of the total respondents 217(52.16%) were males & 199(47.84%) were females. Majority of mothers begin to practice giving breast feed with in 1st hour 302(72.60%). 172(41.35%) mothers gave exclusive breast feed for 6 months. The result shows 12.6% of children’s aged from 0-59 months was severely stunted & 29.8% of children were stunted. Regarding wasting, 100(24.04%) were wasted, and 60(14.42%) were severely wasted. According to the study the prevalence of underweight were 192(46.16%) out of which 42(10.10%) were severely underweight. Prevalence of stunting, wasting and underweight had a significant association with acute and chronic diseases like diarrheal disease, pneumonia, etc (P<0.05).

Conclusion and Recommendation:
1. Wasting, stunting, and underweight were highly prevalent in under five children visiting Hiwot Fana hospital, Harari region.
2. Exclusive breast feeding for the first 6 month of life and timely introduction of complementary feeding had significant association with wasting, stunting and under weight.
3. Common childhood illness such us diarrhea, fever, cough and pneumonia had significant association with under nutrition. Health education especially exclusive breast feeding and complementary feeding counseling are very critical.
Qualitative Study on Adolescent Trafficking for Primary Activity and Domestic Labour in Addis Ababa. Zerihun Dewo

Background: Globally adolescents are about 1.2 billion in 2011 constituting 18% of the total world population. 90% of the adolescents live in developing countries and nearly 62% in 25 Partners in Population and Development (PPD) member countries. In the member countries of PPD, the proportion of adolescents ranged from highest 25% in Ethiopia, Yemen and Zimbabwe to lowest 15% in China and Thailand in 2011.

As the world’s poorest continent, rural Africa is home to some of the most disadvantaged and marginalized youth in the world. Therefore, the increasing trend of adolescent people migrating from their rural villages to urban centers as a survival strategy is of great concern. Many who arrive in the city lose hope of finding employment, are exploited, and find themselves in tragic situations. Labor-related trafficking occurs in a wide range of sectors, such as agriculture, fishing, manufacturing, mining, forestry, construction, domestic servitude, cleaning and hospitality services. Trafficked adolescents may also be forced to work as beggars or soldiers, and girls can be made to serve as ‘wives’. Precise figures at the global or even local level remain elusive. Reliable data on trafficking are difficult to obtain owing to its illegal, often invisible, nature; the range and severity of trafficking activities; and variations in how trafficking is defined.

Objectives: To explore the extent, demographic (population dynamics, pushing and pulling), social, economic, behavioral and political (legal framework, policy) factors related to adolescent trafficking and to describe the consequences (with main focus on health) adolescent trafficking in Addis Ababa.

Methods: The study area is Addis Ababa, a qualitative study of purposive sampling, and maximum variation technique will be used, the data is collected using focus group discussion, in – depth interview, key informants interview and observation, the analysis is carried out by using Open Code software to generate a theory by using grounded theory approach.

Result: Most of who had migrated from rural areas, narrow range of work options available to poor. They worked extremely long hours for low pay in both domestic and primary activity. Many domestic workers described very negative experiences they faced, with economic vulnerability exacerbating their exposure to abuse, exploitation, and sexual violence.
Tuberculosis Treatment Outcomes among TB/HIV co-infected cases treated under Directly Observed Treatment of Short Course in Western Ethiopia. Eyasu Ejeta, Tadesse Birhanu, Tsedeke Wolde 1Department of Medical Laboratory Sciences, College of Medical and Health Sciences, Wollega University, Nekemte, Ethiopia 2School of Veterinary Medicine, College of Medical and Health Sciences, Wollega University, Nekemte, Ethiopia 3Department of Public Health, College of Medical and Health Sciences, Wollega University, Nekemte, Ethiopia

Background: Tuberculosis (TB) and HIV co-infection remains a major public health problem. In spite of different initiatives implemented to tackle the disease, many countries have not reached TB control targets. One of the major attributing reasons for this failure is infection with HIV. This study aims to determine the Treatment Outcomes among TB/HIV co-infected cases treated under Directly Observed Treatment of Short Course in Western Ethiopia.

Methodology: A five year (2009-2013) retrospective cohort study was conducted to assess the treatment outcome of tuberculosis and human immunodeficiency co-infection patients from April to May 2014 in six randomly selected health institutions providing DOTS program in Western Ethiopia. In the selected health institutions, sputum and blood samples were collected and processed using standard laboratory procedures. Bivariate and multivariate logistic regression analyses were used to assess the association between treatment outcomes and predictor variables.

Result: A total of 201 tuberculosis and human immunodeficiency co-infected patients were involved in the study: 15.9% were cured, 44.8% were treatment completed, 17.4% were died during follow-up, 10.0% were defaulted, and 11.4% transferred out to another health institutions. The overall treatment success rates in the last five year was 60.7% and the associated predictors were ART status, year of treatment, and sputum examination follow up status at second and fifth month.

Conclusion: The treatment success rate was low inspite of improvement found in the last five year. Thus, actions targeting (sputum follow up and time to start ART for tuberculosis and human immunodeficiency co-infection patient) on these predictors are necessary to improve the treatment success rate.

Keywords: Treatment outcome, HIV/TB co-infected, DOTS, Western Ethiopia
Determinant Factors Associated with Occurrence of Tuberculosis among Adult People Living with HIV After Antiretroviral Treatment Initiation in Addis Ababa, Ethiopia: A Case Control Study. Kelemu Tilahun (MPH), Alemayehu Worku (PhD), Belaine Girma (MPH, MD), Melchizedek Melese (MPH, MD) 1 Wollega University, College of Health Science, Nekemte, Ethiopia, 2 Addis Ababa University, School of public health, Addis Ababa, Ethiopia, 3 Office of MSH/HEAL TB, U.S. Agency for International Development, Addis Ababa, Ethiopia

Introduction: Tuberculosis (TB) is a leading morbidity and mortality, and the first presenting sign in majority of people living with Human Immune deficiency Virus (PLWH). Determinants of active TB among HIV patients on anti retroviral treatment (ART) are not well described in resource limited settings. The aim of this study was to assess determinant factors for the occurrence of TB among people living with HIV after ART initiation in public hospitals and health centers in Addis Ababa, Ethiopia.

Methods and Findings: A case control study was conducted from December 2011 to February 2012 in 2 public hospitals and 13 health centers in Addis Ababa. The study population consisted of 204 cases and 409 controls. Cases were adult people living with HIV who developed TB after ART initiation and controls were adult people living with HIV who did not develop TB after ART initiation. An interviewer administered structured questionnaire was used to collect information.

After adjustment for potential confounders, presence of isoniazid prophylaxis (adjusted odd ratio [AOR] 0.35, 95% confidence interval [CI] 0.125, 0.69) and cotrimoxazole prophylaxis (AOR= 0.19; 95% CI: 0.06, 0.62) had protective benefit against risk of TB. In contrary, bedridden (AOR= 9.36; 95% CI: 3.39, 25.85), having World Health Organization (WHO) clinical stage III/IV (AOR= 3.40; 95% CI: 1.69, 6.87) and hemoglobin level < 10 mg/dl (AOR= 7.43; 95% CI: 3.04, 18.31) at enrollment to ART care were predictors for increased risk of tuberculosis in PLWH after ART initiation.

Conclusion: Increasing coverage of isoniazid preventive therapy and cotrimoxazole preventive therapy reduced risk of TB among HIV patients who started treatment. All PLWH should be screened for TB, but for patients who have advanced disease condition (WHO clinical stage III/IV, being bedridden and having hemoglobin level < 10 mg/dl) intensified screening is highly recommended during treatment follow up.

Keywords: Active TB, case control study, TB-HIV Co-infection, Determinant factors of TB/HIV, case control study, risk of TB.
Incidence of smear-positive tuberculosis in Dale district, Sidama, South Ethiopia. Endrias Markos Woldeagemat,1,2 D. G. Datiko,1,3 M. H. Dansiso,1,4 B. Lindtjorn,1,4 University of Bergen, Center for International Health, Bergen, Norway, 2 Hawassa University, School of Public and environmental Health, Hawassa, Ethiopia, 3Liverpool School of Tropical Medicine, Liverpool, UK, 4 TB Reach Project Ethiopia, Hawassa, Ethiopia

Background: Incidence is one of the key indicators of tuberculosis (TB) burden. We aimed to estimate incidence of smear-positive tuberculosis (PTB+) in Dale district, South Ethiopia.

Methods: Between September 2011 and June 2012, we conducted a cohort study using three sources of information; namely follow-up of smear negative chronic coughers, follow-up of neighbourhood controls and case notification data from health facilities. We followed 21,668 people for 18,029 person-years.

Results: We detected 56 PTB+ cases, with an incidence rate of (310.6; 95% CI: 236.9 – 400.4)/10^6 person-years. People with cough of two or more weeks (IRR 20.71; 95% CI 12.02 - 35.24), illiterate people (IRR 3.25; 95% CI 1.69 - 6.77) and those found in age groups 35 – 44 years (IRR 3.04; 95% CI 1.41 - 6.67), 55 - 64 years (IRR 3.71; 95% CI 1.17 – 10.31) and above 64 years (IRR 4.54; 95% CI 1.27 – 13.57) had higher risk of PTB+.

Conclusion: We found high incidence of PTB+ in rural communities of southern Ethiopia. It is particularly higher among people with cough of two or more weeks, illiterate people and older people. Systematic follow up and screening of people with cough of two or more weeks could help in reducing the burden. Attention should be given to illiterates and older people.

Keywords: tuberculosis; smear-positive; Ethiopia

Background: Human immunodeficiency virus, multi-drug resistant tuberculosis and extensive drug resistant tuberculosis are emerging as major challenges facing tuberculosis control programs worldwide (especially in Asia and Africa). The challenge is not only from a public health point of view but also in the context of global economy, especially in the absence of treatment for multi-drug resistant tuberculosis at national-level programs in developing countries.

Objective: The aim of this study was to summarize the evidence on the association between multi-drug resistant tuberculosis and HIV infection through a systematic review of existing literature.

Methods: Literature based systemic review of observational studies was conducted. Original studies providing Mycobacterium tuberculosis resistance data stratified by Human Immunodeficiency Virus status were identified using data bases such as MEDLINE/PUBMED, Google Scholar and HINARI. The descriptions of original studies were made using frequency and forest plot. Publication bias was assessed using Funnel plot graphically and Egger weighted and Begg rank regression tests statistically. Heterogeneity across studies was checked using Cochrane Q test statistic and I2. Pool risk estimates of Multi-drug resistance tuberculosis and sub-grouping analysis were computed to analyze associations with Human Immunodeficiency Virus status.

Result: Random effects meta-analysis of all the 24 observational studies showed that Human Immunodeficiency Virus infection was associated with an increased risk of multi-drug resistant tuberculosis (summery odds ratio 1.24; 95%, 1.04 – 1.43). Subgroup analyses showed that effect estimates were higher for primary multi-drug resistance tuberculosis and in population based studies.

Conclusions: Human Immunodeficiency Virus infection is positively and significantly associated with an increased risk of multi-drug resistant tuberculosis regardless of study base and multi-drug resistant tuberculosis type even though it is marginal. Capacity for diagnosis of MDR-TB and initiating and scale up of antiretroviral treatment, and collaborations between HIV and TB control programs need to be considered and strengthened. Ensuring early case detection, diagnosis through quality-assured bacteriology and provide standardized treatment with supervision and patient support, Good infection control program need to be implemented and there also need to have close follow up to reduce risk of spread of MDR-TB, especially in HIV positive patients, particularly in clinics and hospital set up.

**Introduction:** Tuberculosis is the leading causes of mortality among infectious diseases worldwide. The management of previously treated tuberculosis patients (retreatment cases) is a challenge for National Tuberculosis Programmes in resource-limited settings such as Ethiopia. Aims of this study was to determine the treatment outcomes of the different categories of retreatment cases and factors influencing these outcomes in Eastern Ethiopia.

**Methods:** A retrospective cohort study was conducted from 2002-2006 in selected health facilities in Dire Dawa. Study included all TB cases registered as ‘relapse’, ‘failure’ or ‘default’ between September 2002 - March 2006 in Dilchora Referal Hospital and from September 2004 - March 2006 in Legehare Health Center. Data were sourced from TB health unit registers from the two health institutions using a structured data form.

**Result:** A total of 1667 TB patients were treated from September 2002 - March 2006 in Dilchora Referal Hospital and in Legehare Health Center. Of these; 103 of the patients were recorded as TB retreatment cases. The retreatment rate in the follow up period was 6.24. Among the 103 retreatment cases, 52 (50.5%) had a treatment outcome registered in the health unit register; 22 (21.4%) cases were transferred out and 29 (28.2%) had no record of outcome in the register. Of the 52 category II TB treated patients 29 (55.7%) were cured, 14 (26.9%) died, 5 (9.6%) retreatment failure cases and 4 (7.7%) developed multidrug resistance tuberculosis (MDR-TB). Cure rate was maximum (40.0%) and (27.4%) in the patients belonging to the default and relapse category respectively.

**Conclusion:** The analysis has shown that relapse cases were the most common retreatment category and treatment success rates for relapse cases were low (55%). There was also poor treatment outcome recording practice in the health institution. Persistent monitoring of treatment outcomes of relapse, failure and default cases is crucial for improving TB control. And also the health professionals need to record treatment outcome of transferred patients.
Assessment of Knowledge, Attitude of TB Transmission & Practice on Prevention of TB Transmission among TB Patients in Hiwot Fana and Jugel Hospitals in Harar City from January to May 2014. Hiwot Yisak, Haramaya University; Semachew Adugna, Yared Bacha, Esbetu Huluka, Milkiyas Shanta

Introduction: TB is one of the leading causes of mortality & morbidity, particularly for low socioeconomic peoples. It is a serious health problem throughout the world. There is high mortality and morbidity in our country related to TB, there is also high TB case in those hospitals.

Objective: The objective of this study is to assess knowledge & attitude of TB transmission & practice on prevention of TB transmission among TB patients in Hiwot Fana & Jugel hospitals in Harar city from January to May 2014.

Methodology: Across sectional study with convenience method was conduct to select those Hospitals from others, b/c there was patients flow and feasible to conduct this research. Aquota sampling technique was used to select study subject. Data collection was hold by using interview.

Result: 98.4% of the respondents knew different methods of TB transmission & prevention method. 20% of respondents had regular sputum checkup. 12.5% of study population thought that TB was transmitted genetically. 62.5% of respondents thought that HIV will facilitate TB transmission.

Conclusion: most of TB patients in our study population believe that TB will transmit by air but 12.5% of patients believe that TB was transmit genetically. Most of our study population knew that overcrowding facilitate TB transmission.

Recommendation: Hiwot Fana & Jugel hospitals staffs should work together on TB patients to increase their knowledge, attitude & prevention towards TB transmission & prevention methods of TB. The Harar regional health bureau should work on the community to raise their awareness about TB transmission and prevention.
Determinants of active pulmonary tuberculosis in ambo hospital, west Ethiopia: A case control study. Wanzahun Godana¹, Tenma Ephrem², Bezatu Mengiste³, Firehiwat Mesfin⁴

Objectives: The aim of this study was to determine associated factors of Active Pulmonary Tuberculosis in Ambo Hospital.

Design: A facility based prospective case–control study.


Participants: 312 adult patients attending ambo hospital. Main outcome measures: presence of active pulmonary TB

Explanatory measures: Age, Sex, Occupation, Educational status, marital status, place of residence, patient history of TB, family history of TB, HIV infection, Smoking, alcohol intake, khat chewing, BMI, employment, Diabetes, history of asthma, previous history of worm infection, history of hospitalization, number of adults living in the HH, person per room, housing condition.

Results: A total of 312 study participants, 104 Active PTB cases (Cases) and 208 not active PTB cases (Controls) were recruited in the study. Patients who had one or more family member with history of TB (OR=4.4, 95% CI 1.50-12.90), single marital status (OR 7.6, 95% CI 2.2-12.6), male sex (OR 3.2, 95% CI 1.4,7), rural residence (OR 3.3, p-value 0.012), current or past smokers (OR 2.8, 95% CI 1.1-7.2), under nutrition (BMI<18.5) (OR 2.1 and 95% CI 1.03-4.2), HIV infection (OR 8.8 and 95% CI of 2.4-23.8), having the history of worm infection (OR 6.4 and 95% CI 2.6-15.4) remained independently significant host related factors for active PTB.

Conclusions: Those patients who came from a compound with more than two HHs were more likely to develop active PTB than those who came from a compound with only one HH. Those who live in houses with no window were more likely developing active PTB than those who live in houses with one or more windows. Not being the owner of the house was significantly more likely associated with active PTB. Measures taken to reduce the prevalence and burden of active pulmonary TB should consider these determinant factors.
Statistical Analysis of Tuberculosis Distribution and Identifying Risky Areas: The Case of North Shoa Zone, Ethiopia. Habte Tadesse, M.Sc. and Butte Gotu, PhD. 1Lecturer of Statistics at Ambo University, Ethiopia 2Associate Professor of Statistics at Addis Ababa University, Ethiopia

Tuberculosis is the major cause of health problems in Ethiopia, accounting for more than thousands of cases and deaths occurring annually. The risks of morbidity and mortality associated with TB are characterized by spatial variations across the country. The main goal of the study is to examine TB distribution and identifying risky areas in North Shoa Zone. Additionally, the study also explores factors that govern TB Case loading in the study area. In order to meet the goal of the study individual morbidity data obtained from North Shoa Oromia National Regional State of Ethiopia Health Bureau in 2008. The data were collected and reported in 2007 from each woreda of the zone. Global Moran’s I, Geary’s C and Moran scatter plot are used in determining the distribution of TB and identifying risky areas in the study area. Furthermore, Poisson and Negative Binomial Regression Models were used for identifying factors associated with TB Case loading in the study area. Advanced statistical packages mainly SAS, GeoDA and ArcGIS were practically used for modeling and to know the pattern of TB in the study area. The values of Global Moran’s I shows that the presence of significant TB clustering in North Shoa Zone. A significant TB clustering of hot spot and cold spot were observed in nine woredas while in some other districts a significant TB clustering of dissimilar values were observed. It is clearly noted from the map of ArcGIS areas of hot spot and cold spot of TB Cases in the Study area. Furthermore, the findings of Poisson and Negative Binomial Regression Models have shown that all explanatory variables (population density, number of standard health centres and prevalence of HIV cases) are significantly associated with TB case loading. Poisson and negative binomial regression analysis show a decrease in TB case loading with increasing number of standard health centres. Additionally, it is population density that is highly associated with TB case loading. Thus, it is highly encouraged that if the government provides intensive family planning and expands medical facilities in the areas of hot spot of TB case loading.

Keywords: Moran’s I, Moran Scatter Plot, Spatial, pattern, and Tuberculosis
Tuberculosis Related Mortality and its Socio-Demographic Determinants in Kilte Awulaelo Health and Demographic Surveillance System, Tigray Region, Ethiopia. Gebretsadik Berhe, PhD, Department of Public Health, Mekelle University; Yohannes Adama, MPH, Department of Public Health, Mekelle University.

Introduction: Mortality is an important indicator of the health status of a population and useful tool for evaluation of public health programs. In Ethiopia, due to absence vital registration systems, there is a deficiency of mortality data at both health facility and community level. In this regard, the magnitude and pattern of mortality associated with tuberculosis (TB) and its determinants can be determined from the Health and Demographic Surveillance System.

Objective: This study was conducted to determine TB related mortality and its socio-demographic predictors at the Kilte Awulaelo Health and Demographic Surveillance System (KA-HDSS), Tigray region, Ethiopia.

Methods: Secondary data from the 10 Kebelles in KADHSS collected between January 2009 and September 2014 were analyzed. The study population was adult persons of 15 years old or greater. TB mortality was ascertained by verbal autopsy and cause of death is assigned according to the ICD 10 classification. Descriptive statistics including frequencies, percentages, and means were calculated. Bivariate and multivariable logistic regression analysis was conducted to compute OR and their 95% confidence interval of the socio-demographic determinants of TB mortality. Data analysis was done using STATA 11.

Results: A total of 52,761 adult population was studied of whom males accounted for 46.31% of the total population. The crude TB mortality and proportional mortality were 240/100,000 population (127/52,761) and 16.37% (127/776), respectively. On the bivariate analysis, age, educational status and marital status were found statistically significantly associated with TB mortality. On multivariable analysis only age and educational status of the respondents were identified as independent predictors of TB mortality. Those who were ≥47 years of old (AOR = 15.17, 95% CI: 6.26-36.75) had higher mortality compared with 31-46 years old and 15-30 years old persons. Moreover, primary school (AOR = 0.35, 95% CI: 0.13-0.89) educational status was found protective from TB mortality as compared with its comparison groups.

Conclusion and Recommendation: TB associated mortality is higher considering preventable and treatable nature of TB disease. It is necessary to intensify DOTS service coverage and quality and give focus on those vulnerable populations identified by this study.
Tuberculosis among Ethiopian Inmates. Solomon Ali, PhD scholar, College of Health Sciences, Jimma University and Center for International Health of the Ludwig-Maximilians-Universität, Munich; Abrahim HaileAmlak, Prof., College of Health Sciences, Jimma University; Norbert Heinrich, Dr., Center for International Health of the Ludwig-Maximilians-Universität, Munich; Michael Hoelscher, Prof., Center for International Health of the Ludwig-Maximilians-Universität, Munich; Thomas Loetscher, Prof., Center for International Health of the Ludwig-Maximilians-Universität, Munich; Andrea Rauhov, Dr., Center for International Health of the Ludwig-Maximilians-Universität, Munich.

Background: Tuberculosis, caused by infection with M. tuberculosis complex bacteria is one of the most frequently occurring infectious diseases in the world. It is one of the major public health problems in correctional facilities. Poor health service provision, inadequate tuberculosis diagnostic and treatment facilities in prison compounds might increase the risk of the development of multidrug-resistant (MDR) or extensively drug resistant (XDR) tuberculosis to the entire population. Hence, this study was done to assess the magnitude and determinants of tuberculosis on inmates incarcerated in Ethiopian prisons.

Methods: Cross sectional study was conducted from January, 2013 to Dec, 2013 on all inmates incarcerated in 13 Ethiopian zone prisons. All inmates incarcerated on these prisons were prescreened based on WHO recommended tuberculosis suspect identification criteria. Socio demographic and risk factor data were collected from identified suspects by pre designed questioner. Sputum and blood samples were collected as per SOP for sputum and blood samples collection. HIV screening was done by KHB Diagnostic kit for HIV (1+2) Antibody (colloidal gold) (Shanghai Kehua Bio-Engineering Co.,Ltd). Smear microscopy of slides stained by Ziehl Neelsen technique was done at each prison. Samples were stored at 0-6°C temporarily and transported to Jimma University Specialized Hospital tuberculosis laboratory by Cold box. In this laboratory, sputum was cultured on Löwenstein-Jensen (LJ) media slants (BBL™ Lowenstein-Jensen Medium).

Result: Base on the WHO criteria 765 (4.9%) tuberculosis suspected inmates were identified. Nearly 4.5% of these participants were HIV sero positives. The prevalence of culture and/smear positive tuberculosis in Ethiopian prisons was 458.1 per 100000 inmates. The burden of tuberculosis was higher in prisons located at a distance of more than 400km from Addis Ababa (p=0.029). The risk of developing tuberculosis was high on those inmates incarcerated in rooms without window [AOR=0.26, 95% CI: (0.15, 0.45)], with alcohol drinking habit [AOR=2.094, 95% CI: (1.227,3.574)] and inmates with previous contact history with TB patient at home [AOR=1.47 95% CI: (1.062,2.045)].

Conclusion: Overall prevalence of tuberculosis in Ethiopian prisons was more than two times higher than the population prevalence. There is variability among individual prisons. TB is a big problem in prisons located far from Addis Ababa. Enough attention should be given by the government and its allies to control TB in prisons far from Addis Ababa, to improve the ventilation system of the prison cells and for early diagnosis of TB to reduce the burden from prisons.
Risk Factors for Multi Drug Resistant Tuberculosis in Presumptive Resistant Patients in Amhara National Regional State: An Unmatched Case-Control Study. Wondemagen Mutu, MSc; College of Medicine and Health Sciences and Department of Medical Microbiology, Immunology and Parasitology, Bahir Dar university; Daniel Mekonen, MSc; College of Medicine and Health Sciences and Department of Medical Microbiology, Immunology and Parasitology, Bahir Dar University; Mulat Yimer, MSc; College of Medicine and Health Sciences and Department of Medical Microbiology, Immunology and Parasitology, Bahir Dar University; Ashalew Admassu, MSc, Bahir Dar Regional and Health Research Laboratory; Bazehe Alera, MSc; College of Medicine and Health Sciences and Department of Medical Microbiology, Immunology and Parasitology, Bahir Dar university.

Background: Multi drug resistant tuberculosis (MDR-TB) is becoming a major threat to tuberculosis control programs in Ethiopia.

Objectives: To assess risk factors of MDR-TB patients in Amhara National Regional State.

Methods: Case-control study was conducted from May 2013 to January 2014. Tuberculosis patients infected with MDR-TB and TB patients infected by non-MDR Mycobacterium tuberculosis strain were considered as cases and controls, respectively. Data were collected using structured questionnaire by face to face patient interview and patient’s clinical record review. Multivariate analysis was computed to identify the risk factors of MDR-TB.

Results: A total of 153 MDR-TB and equal number of non-MDR TB patient’s took part in the study. Patients who had tuberculosis treatment failure (AOR=13.5, CI=2.69-70), cavitations on chest x-ray (AOR=1.9, CI=1.1-3.38), low monthly income (AOR=1.1, CI=0.34-0.47), contact with MDR-TB patients (AOR=1.4, CI=0.19-0.39) and alcoholism (AOR=1.5, CI=0.2-0.98) and younger age groups (AOR=2.9, CI=1.07-7.68) were more likely to be MDR-TB patients.

Conclusions: TB treatment failure, cavitation on chest X-ray, contact with MDR-TB patients and low socioeconomic status were an important risk factor for MDR-TB. Therefore, strict adherence to directly observed therapy, appropriate management of TB patients and advice on the value of nutrition are helpful to control the spreading of MDR-TB.

Keywords: Risk factors, MDR-TB, Ethiopia.
Comparative Performance Between Xpert MTB/RIF Assay, LED Fluorescence Microscopy, and Zn Light Microscopy for Detection of Mycobacterium Tuberculosis in Sputum Samples in Addis Ababa. Daniel Depero, MSc, Addis Ababa Regional Health and Research Laboratory; Kassu Desta, PhD candidate, College of Health science, Department of Medical laboratory Technology, Addis Ababa University; Abreham Tesfaye, PhD Candidate; Biniam Taye, PhD Candidate

Introduction: In Ethiopia, Tuberculosis case detection among vulnerable population groups including children, HIV positives and other high risk groups remains low due to insensitive diagnostic tools like Ziehl-Neelsen microscopy which does not detect all positive TB cases among TB suspects. Therefore, there is a need to assess the incremental value of new diagnostic tool like Xpert MTB/RIF assay and Light Emitted Diode Fluorescent microscopy for tuberculosis detection in our setting.

Objective of the Study: To determine the performance of Xpert MTB/RIF assay in comparison with Light Emitted Diode Fluorescent microscopy and Ziehl-Neelsen smear microscopy for detection of Mycobacterium Tuberculosis in sputum samples in Addis Ababa.

Methods and Materials: A prospective cross-sectional study was conducted and Lowstein Jensen culture media was used as the gold standard for sub-samples. All data was entered into an excel spreadsheet, then transfer and analyzed using SPSS version 20. McNamara’s and Kappa statistics was used for proportion and the percent agreement analysis.

Results: 358 pulmonary specimens obtained from pulmonary tuberculosis suspected patients were included in the study. The percent agreement between Light Emitted Diode Fluorescent microscopy and Ziehl-Neelsen smear microscopy, Xpert MTB/RIF assay and Light Emitted Diode Fluorescent microscopy, Xpert MTB/RIF assay and Ziehl-Neelsen smear microscopy for MTB detection showed that k=75%(95%CI,67% to 81%), p<.0005, k=81.8%(95%CI, 81% to 82.6%), p<.0005 and k=72.6%(95%CI,61.6%to82.6%), p<.0005, respectively. The percent agreement of the three tests showed that there were an overall percent agreement of 87.4%, 84.6%, and 90.9% between Light Emitted Diode Fluorescent microscopy and Ziehl-Neelsen microscopy, Xpert MTB/RIF assay and Ziehl-Neelsen microscopy, and Light Emitted Diode Fluorescent microscopy and Xpert MTB/RIF assay respectively. In the sub group study the sensitivity, specificity, PPV and NPV achieved with direct Ziehl-Neelsen smear microscopy, Light Emitted Diode Fluorescent microscopy and Xpert MTB/RIF using culture as a gold standard in 167(47%) samples were (76.9%, 96%, 97.8% and 64%), (81.2%, 90%, 95%, 67.2%) and (89.7%, 92%, 96.3%, 86.2%) respectively.

Conclusion: Xpert MTB/RIF assay has better yield than both methods with incremental yield of 12.8% and Light Emitted Diode Fluorescent smear microscopy has better yield than Ziehl-Neelsen smear microscopy with incremental yield of 4.8%, therefore Xpert MTB/RIF assay is a highly accurate diagnostic tool for MTB detection, which achieves a substantial reduction in diagnostic delay.

Keywords: Light Emitting Diode Fluorescent Microscopy (LED-FM), Ziehl-Neelsen (ZN), Xpert MTB/RIF assay.
Factors Associated with Case Notification of Smear-Positive Tuberculosis in Southern Nations, Nationalities, and Peoples Region, Ethiopia, a Multicenter Comparative Cross Sectional Study. Tarekegn Solomon, MPH., Hawassa University, School of Public and Environmental Health; Ezekindur Loha, PhD., Hawassa University, School of Public and Environmental Health; Erkine Klinkenberg, PhD., KNCV Tuberculosis Foundation, The Hague, The Netherlands, Department of Global Health, Academic Medical Centre, University of Amsterdam, Amsterdam Institute for Global Health and Development, The Netherlands; Mekonnen Shiferaw, BSc.; SNNPR-Health Bureau; Wolde Abrehem, BSc., SNNPR-Health Bureau, Binjiyam Tigru, BSc., Aleka Wondo Town Health Centre, SNNPR, from September 20 to October 30, 2013

Background: In early 1990s World Health Organization (WHO) declared tuberculosis (TB) as a global public health emergency. To combat the problem, WHO set 70% TB case detection rate targets to be reached by the year 2000. However, globally TB case notification rate (CNR) remains low. Although Ethiopia has achieved 72% CNR of all forms of TB in 2011, there is still high variation within Southern Nations, Nationalities, and Peoples region (SNNPR). The contributing factors for high variation in case notification rate are not well known.

Objective: To determine factors contributing to the large variation in case notification rate of smear-positive pulmonary TB among Zones and Special Woreda in SNNPR.

Methods: A comparative cross-sectional study was conducted among health facilities with high and low case notification of Smear-Positive pulmonary tuberculosis in SNNPR from September to October, 2013. High and low CNR were categorized based on 2011/2012 SNNP RHB TB case report. Zones and Special Woredas that have CNR below first quartile were considered as low and above third quartile as high. Factors contributing for TB CNR were compared between high and low CNR zones and special woredas. Binary logistic regression model was fitted to the data.

Result: A total of 50 (60.97%) and 32 (39.03%) health centers from high and low CNR were included in the study respectively. In addition to this, 172 (65.15%) and 92 (34.85%) health care providers were interviewed from high and low CNR zones and special woredas respectively. Assignment of full time TB care provider in TB clinic (AOR=5.77, 95%CI=1.49-22.41) and availability of TB recording tools (AOR=7.01, 95%CI=1.51-32.48) in the health center were independent predictors of high CNR of smear-positive pulmonary tuberculosis. Having above median knowledge score (AOR=2.53, 95%CI=1.42-4.48) by the health care providers was also another independent predictor of high CNR of Smear-Positive pulmonary TB.

Conclusion: Presence of full time TB care provider in TB clinic, availability of TB recording tools and good knowledge about TB are associated with increases in CNR of smear positive TB. More efforts on assigning full time TB care provider in TB clinic, availing TB recording tools and providing training for health care providers on TB may improve TB CNR.

Keywords: Case Notification Rate, Smear-Positive pulmonary TB, SNNPR, High and Low TB CNR.
List of Oral Presenters

Abate Zewdie
Abdu Bedru
Abdulhalik Workicho
Abebe Bekele
Abebe Habteselassie
Abel Fekadu
Abise Gudeta
Abiy Seifu
Abiyu Asmamaw
Achenef Motbainor
Addisalem Titiyos
Addisu Gize
Adeba Tessisa
Aklewog Seyoum
Alem Desta
Alemayehu Bayray
Alemayehu Shimeka
Alemayhu Bekele
Alemnesh Tekleberhan
Alemu Sufa
Alexander Paxton2
Andamlak Gizaw
Andualem Derese
Andualem Mossie (Dr.)
Anteneh Messele
Aschalew Alemu
Asfaw Debella
Ashagre Molla
Ashenif Tadele
Asmamaw Abera
Asresu Tariku
Atkure Defar
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