Ethiopian Medical Laboratory Association, EMLA
18th Annual Conference and Continuing Medical Education

Abstract Book
June 8th - 9th 2013
Ghion Hotel
Addis Ababa, Ethiopia

Quality Laboratory Result Influences Clinical Outcomes
Acknowledgement

The Ethiopian Medical Laboratory association (EMLA) would like to acknowledge the following organizations and institutions with gratitude for their financial support in the preparation and success of the 18th annual conference and continuing medical education.

1. The Federal Ministry of Health (MOH)
2. Ethiopian Medical Association (EMA)
3. CDC-Ethiopia
4. Jhpiego, an affiliate of Johns Hopkins University
5. USAID Private Health Sector Program
6. Afro German Chemicals Est. PLC
7. Labora International Trading PLC
8. Medicor Africa PLC
Dear Colleagues, Members of EMLA, and Professionals in the Fields of Laboratory Medicine!

On behalf of the Executive Committee of Ethiopian Medical Laboratory Association (EMLA), and the 18th conference organizing committee, it is with great pleasure to invite you to our Conference, which will take place in Ghion Hotel, Addis Ababa, Ethiopia, on June 8 – 9th, 2013. The annual Conference of this year promises to be a memorable professional and scientific experience building on EMLA’s small success stories during the year 2012.

The scientific program will cover a wide range of topics and includes sessions of panel discussion on Scope of Practice of Medical Laboratory professionals, Medical Laboratory Accreditation Practices in Ethiopia - Emerging Opportunities, Challenges and Prospects, and Continuing Professional Development and professional Licensing, followed by a state of art lecture of Continuing Medical Education and other topics pertaining to Haematology, Medical Microbiology, Virology, Immunology, Public Health Epidemiology, Clinical Chemistry/Biochemistry, Molecular Biology, Health Laboratory Management and Quality Assurance. The program is expected to attract a wide variety of participants including, Medical Laboratory Technicians, Medical Laboratory Technologists, Medical and Biomedical Laboratory Science Specialists, as well as all Laboratory Suppliers, from all fields of Laboratory Medicine.

This is an ideal opportunity to share knowledge and gain deeper insight into all aspects of Laboratory Medicine not only by participating in conference, attending oral and poster presentations, but also by visiting the exhibition where all the latest in technological advances will be displayed, as well as networking with your peers. We are certain that the program will please all participants.

Now, it is a pleasure to acknowledge, Jhpiego-an affiliate of Johns Hopkins University, AFRO GERMEN CHEMICALS EST.PLC, USAID | Private Health Sector Program, Labora International Trading PLC, and Medicor Africa PLC for their financial support for the conference to be a success.

Finally, We have particularly honored and privileged to acknowledge, Panelists, CME presenters, researchers, chief editor, and reviewers for their commitment, time and effort that they have invested on the development of this abstract book.

Please save these dates in your calendar, we look forward to hosting you in the upcoming conference!

Best Regards’

Gizachew Tadesse Akalu (Mr)
Vice President, EMLA
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Aster Tsegaye, PhD

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Editorial Note

Dear EMLA members and distinguished professionals in the biomedical fields!

It's a great pleasure and honor to welcome you all to the 18th annual conference of the Ethiopian Medical Laboratory Association (EMLA), which will be held from 8-9, June 2013.

EMLA is striving for better quality medical laboratory service in the country. This year's theme "Quality Laboratory Result Influences Clinical Outcomes" with a sub-Theme "Medical Laboratory Accreditation Status in Ethiopia, Emerging Opportunities, Challenges and Prospects" is a timely issue to discuss out of which we hope important recommendations can be forwarded to the concerned bodies.

Continuing Medical Laboratory Education (CMLE) on the main Theme will be provided to the Medical laboratory professionals by distinguished consultant Internist and Medical Laboratory Professional Specialists as part of the conference activities. The oral and poster presentations will be an excellent forum for disseminating research findings among which are laboratory method evaluations, identification of errors at all phases of the laboratory work flow and status of progress towards the accreditation process.

Finally on behalf of the Executive board of EMLA, we sincerely thank all those who make this conference possible through financial as well as material support. The Panelists, CMLE presenters, distinguished researchers who share their research findings and the reviewers are all gratefully acknowledged.

Wishing you a pleasant and successful conference!

Aster Tsegaye, PhD

Chief Editor
AB 01. Rapid Diagnosis of Tuberculous Pleuritis and Lymphadenitis with Immunocytochemical Detection of *Mycobacterium tuberculosis* Complex antigen, MPT64.

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**Background:** A rapid, sensitive and accurate laboratory diagnosis has paramount importance in cases of suspected extrapulmonary tuberculosis. However, traditional techniques of detection of acid-fast bacilli have limitations.

Objective: To evaluate the diagnostic ability of immunocytochemical staining for detection of *Mycobacterium tuberculosis* complex specific antigen, MPT64, from pleural effusions and lymph node aspirates.

**Methods:** A cross-sectional study was conducted in Tikur Anbessa Specialized Hospital and United Vision Medical Service from December 2011 to June 2012. A total of 51 cases tuberculous pleuritis and tuberculous lymphadenitis and 67 non-TB controls were enrolled. Ziehl-Neelsen (ZN) staining, culture by Lowenstein–Jensen (LJ) medium, cytological examination by Wright staining, IS1081-polymerase chain reaction (PCR) and immunocytochemistry (ICC) with polyclonal anti-MPT64 antibody, complete blood count, HIV screening were performed.

**Results:** The overall sensitivity and specificity, positive and negative predictive value of ICC was 74, 89, 84 and 82%, respectively. The respective sensitivity, specificity, positive and negative predictive value was 88, 89, 82 and 93% while using IS1081-PCR as a reference method. The case detection rate has increased from 13.7% by ZN stain to 19.6% by LJ culture, to 66.7% by cytology and 74.5% by ICC.

**Conclusion and recommendation:** Further studies have to be conducted using monoclonal antibodies including other sites of extrapulmonary tuberculosis. Otherwise, immunocytochemical staining technique is a simple, rapid and accurate method which can be performed in a routine pathology laboratory.

**Key words:** Ziehl-Neelsen, PCR, LJ culture, ICC, Extrapulmonary tuberculosis
AB 02. Recombinant Bacteriophage Endolysins as New Antibacterial Agents

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Background: In the 21st century, due to the high resistance levels of bacterial pathogens to commonly used antibiotics, bacterial infections have become a major global healthcare problem. Bacteriophages (viruses that infect bacteria) offer a promising solution in the form of lytic enzymes, also called endolysins, which are encoded by the phage and efficiently degrade the peptidoglycan layer of bacterial host cell. However, a big challenge remains for the possible application of endolysins against Gram-negative bacterial infections as the presence of the outer membrane surrounding the peptidoglycan layer of the Gram-negative bacteria acts as a barrier to the exogenously applied endolysins.

Objective: To determine the antibacterial effect of PK modified (9 positively charged amino acids (KRKKRKRR)K) endolysine.

Methods: the gene encoding the 201q2-1gp229 endolysin was isolated and N-terminally modified using a tail PCR, and both wild type and PK-modified endolysin were recombinant expressed in an in vitro E. coli expression system and purified using the Fast Protein Liquid Chromatography technique with success. In a second stage, the biochemical muralytic activities of 201q2-1gp229 and PK-201q2-1gp229 were quantified on outer membrane permeabilized PAO1K cells with values of 1,572,390 units/mM and 738,652 units/mM respectively showing a reduction on the muralytic activity (+/- 53%) of this endolysin caused by the PK-modification. On the other hand, the effect of PK-modification on optimal pH for muralytic activity was negligible with both proteins having an optimal pH between 7 and 8. Finally, the possible effect of the PK-modification on the in vitro antibacterial activity of 201q2-1gp229 was examined and the host range of the modified endolysin was evaluated on 8 exponential growing Gram-negative pathogenic strains.

Results: the study finding showed that a slight strain dependent facilitation of the outer membrane permeabilization, especially of P. aeruginosa PAO1r and P. putida G1, by the PK-modification in comparison to the wild type endolysin. Addition of small concentrations of EDTA even boosted the outer membrane permeabilization of the PK-modification up to log reduction values of 4.3, 4.36 and 4.17 on P. aeruginosa PAO1r, P. putida G1 and E. coli XL1 blue respectively were reached. These results are very promising for further development of therapeutic to treat infections caused by Gram-negative pathogens.

Conclusion and Recommendations: The sensitivity of some Gram-negative pathogens, in particular Pseudomonas aeruginosa and Pseudomonas putida, for the combination of recombinant modified endolysins and an outer membrane permeabilizer, in this case EDTA, is very promising and this finding could possibly be further developed for use in future therapeutic applications to prevent or to treat infections caused by these pathogens. Nonetheless, the above findings also indicated the necessity of other outer membrane specific tail modifications to raise the anti-Gram-negative properties and broaden the bacterial host range of endolysin with other Gram-negative pathogenic strains.
AB 03. Assessment of pre analytical, analytical and post analytical errors in Hematology and Clinical Chemistry Laboratory tests at St. Paul’s Hospital Millennium Medical College Addis Ababa, Ethiopia.

Hirut Tadesse¹,², BSc; Fatuma Hassen², MSc; Kassu Desta², MSc, Samuel Kindie², MSc

Background: Information provided by clinical laboratories affects up to 60-70% of clinical decisions. However, laboratory errors are sources of uncertainties. Laboratory errors are any defect from ordering test by physician to reporting results and appropriately interpreting the result.

Objective: To determine the magnitude of pre analytical, analytical and post analytical laboratory errors in Hematology and clinical chemistry tests.

Methods: Across-sectional descriptive study was conducted to assess the magnitude of pre-analytical, analytical and post-analytical errors in St. Paul’s Hospital Millennium Medical College. A convenient sampling method was used. Quantitative data were collected using pretested structured checklists. Data were collected for three months from December 2012 to March 2013 in all Hematology and clinical Chemistry sections. The data entry and analysis were conducted using Excel and SPSS version 19. Bivariate analysis and Multivariate logistic regression were used to infer association and prediction.

Results: A total of 4239 data were collected from hematology and clinical chemistry department. In hematology department an error rate of, 562 (75.5%) pre-analytic problems 14(2%) analytical and 168 (22.5%) post analytical errors were identified. In clinical chemistry the total number of errors were 72.3% pre-analytical, 8.3% analytical and 19.2% post analytical errors were recorded. From a total of 2606 CBC requested by clinicians, patient’s age was not supplied on 298 (14.4%), while patient’s gender was not present on 266 (10.2%) of forms. About one thousands eight hundred twenty seven (70.1%) of the request forms were un accompanied with proper clinical details of the patient. The name of the physician ordering the test was provided on only 391 (15%) of request forms. From 1633 clinical chemistry requests; the clinical data was recorded in 448 (27.4%) requests. Demographic data; the patient name not recorded about 8(0.5%) forms. Age and gender was missed on 257 (15.7%), 190 (11.6%) requests respectively. The physician name existed on only 248 (15.2%) requests, and physician signed on 1137(69.6%) requests.

Conclusion: Essential information required on the request forms was often missed. Most errors observed before sample collection, which is during sampling or preparation for analysis. Closer interaction between clinicians and laboratory personnel is the key to improve laboratory quality in general.

Key words: Errors; Clinical chemistry, Hematology, request forms

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AB 04. Liquid Culture Method (BACTEC™ MGIT 960™ TB detection system) for Diagnosis of Mycobacterial Lymphadenitis: Comparison with different diagnostic methods at Jimma University Specialized Hospital, Jimma, Southwest, Ethiopia

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Background: Tuberculosis (TB) is a major public health problem. Ethiopia ranks 7th in the list of 22 high tuberculosis burden countries and ranked 3rd in terms of the number of extra-pulmonary tuberculosis (EPTB); with 80% of EPTB being lymph node TB. In spite of this high magnitude, diagnosis of tuberculous lymphadenitis remains a challenge.

Objective: To assess the added diagnostic value of BACTEC™ MGIT 960™ TB detection system by comparing with different diagnostic methods for diagnosis of mycobacterial lymphadenitis

Methods: A hospital-based cross-sectional study was carried out at Jimma University Specialized Hospital from April 1-August 30, 2012. A total of 200 patients suspected of having mycobacterial lymphadenitis were enrolled. Fine Needle Aspiration Cytology (FNAC), Zeihl-Neelsen staining (direct and concentration method) and mycobacterial culture on Löwenstein-Jensen (LJ) and Mycobacteria Growth Indicator Tube (MGIT) were performed. Mycobacterial species identification was done by p-nitrobenzoic acid (PNB) susceptibility test. Data were analyzed by using SPSS version 16.0. Sensitivity, specificity, positive and negative predictive values were computed. Mean time to detection for LJ and MGIT was compared by using paired T-test.

Results: Laboratory test result was available for 191 aspirates. Out of these, 153(80.1%) showed cytologic features consistent with tuberculous lymphadenitis. The detection rates of direct AFB smear was 47(24.6%), N-acetyl-L-Cystiene (NALC)–NaOH concentration method was 96(50.3%), L-J media was 131(68.6%) and that of MGIT 960 system was 148(77.5%). Based on the gold standard method (combination of L-J and/or MGIT 960 media), 149(78%) cases were confirmed as mycobacterial lymphadenitis. Based on para-nitrobenzoic acid (PNB) inhibition test, 145 (97.3%) were Mycobacterium tuberculosis complex (MTBC) and the rest 4(2.7%) were Non-tuberculous mycobacteria (NTM). FNAC had sensitivity, specificity, positive, and negative predictive values of 88.6%, 50%, 86.3% and 55.3%, respectively. Direct ZN staining had sensitivity specificity, PPV and NPV 31.5 %; 100%, 100% and 29.2 %, respectively. On the other hand, NALC–NaOH concentration method had sensitivity, specificity, PPV and NPV of 61.7 %, 90.5 %; 95.8 % and 40.%, respectively. L-J media had sensitivity, specificity, PPV and NPV of 87.9 %, 100%, 100 % and 70 %, respectively. while MGIT 960 had 99.3% sensitivity, 100% specificity, 100% PPV and 97.6% NPV. The mean time to detection on MGIT 960 was 11.3 and that of LJ media was 23.4 days. There was statistically significant association between presence of caseation and diagnosis of TBLN by cytology; and presence of pus with AFB positivity on direct AFB smear examination [p.value<0.05].

Conclusions and recommendations: Fine needle aspiration cytology was the least specific and direct Zeil-Nelseen staining was the least sensitive. NALC-NaOH concentration method significantly improved sensitivity of AFB smear microscopy. The MGIT 960 TB detection system has high sensitivity, NPV and a short detection time for mycobacteria from FNA specimens. If facility allows, NALC-NaOH concentration method and culture (MGIT960) should be considered to supplement the diagnosis of TBLN in addition to routine cytology.

Key words: Tuberculous lymphadenitis, BACTEC MGIT 960, fine needle aspiration cytology, sensitivity, specificity, Contact : mulualemt.tadesse@gmail.com
**AB 05. Progress Towards Laboratory System Strengthening and Quality Improvement in Ethiopia**

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**Background:** Laboratories provide critical test results for disease diagnosis, treatment monitoring and surveillance. Despite their importance, laboratories in resource limited countries were affected by lack of resources and prioritization, hampering laboratory systems in efforts to fulfill their important role in the fight against infectious and chronic diseases. Strengthening Laboratory Management Towards Accreditation (SLMTA) was developed by the African Regional Office of the World Health Organization (WHO-AFRO) and its partners in 2009, to improve the quality of laboratory service.

**Objective:** To evaluate the impact of the SLMTA program, onsite support and major challenges in the implementation of SLMTA improvement projects.

**Methods:** The 45 laboratories were divided into two cohorts of implementation. In the first cohort 24 laboratories participated, SLMTA was implemented from June 2010 to October 2011. In the second cohort 21 laboratories took part, SLMTA was implemented from January 2011 to May 2012. Performance was tracked using the WHO-AFRO/SLIPTA checklist, with assessments carried out at baseline and at the end of three workshops of SLMTA.

**Results:** Averages of 16.9% (from 41.2% to 58.1%) and 11% (from 42.4% to 53.4%) increments of assessment scores were observed among laboratories in first and second cohort groups respectively. Lack of harmonization with hospital reforms, inadequate onsite support, weak management support, inadequate knowledge of quality management systems, insufficient commitment among non-SLMTA-trained staff, and lack of quality management policies and procedures were the most important impediments to SLMTA implementation. These major challenges encountered during implementation of SLMTA were also reflected during focused group discussion of workshop participants from the various laboratories.

**Conclusions:** The improvements observed are promising and indicative that, with the proper guidance, laboratory accreditation can be attained within a short to midterm.

**Key terms:** Accreditation, SLMTA, WHO-AFRO, SLIPTA checklist.

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AB 06. Cost assessment of clinical chemistry and hematology laboratory tests using Activity Based Costing (ABC) tool.
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Background: Cost information is the basis for most management’s tactical and strategic decision making. ABC is important for proper pricing and process improvement. It also provides the basis for allowing executives to manage activities.

Objective: To assess cost of clinical chemistry and hematology laboratory tests at Tikur Anbesa Specialized Teaching Hospital from October 2011 to December 2011, Addis Ababa, Ethiopia.

Methods: Panel study design was implemented to estimate the true cost of laboratory tests using ABC tool. Data on resources consumption were collected from the actual work processes. Resources were associated to activities and their corresponding cost was traced or allocated to activities then to cost objects. The collected data were entered into Microsoft Excel spread sheet and transferred to SPSS software. Data were analyzed using SPSS version 19 and Micro Soft Excel 2007 programs. Paired sample t-test and descriptive statistics were also used for analysis and presentation.

Result: The result showed that direct material cost, direct labor cost, indirect labor cost, and indirect material cost was 45.9%, 20.8%, 18%, and 15.2%, respectively. The maximum cost per test was CD4+ T cell count which was Br. 120.51 followed by Complete blood count with Br. 29.18. The minimum cost per test was Br. 7.77 for serum total protein and cerebro-spinal fluid protein. There was significant change in the day to day variations in the number of each test done during the study period. The result also confirmed that cost of each test estimated using ABC was significantly different from the price charge of each test when tested using paired sample t-test with P-value P<0.001.

Conclusion: Despite several limitations this study had, it demonstrates variations between actual cost and ABC analysis based estimations. The study has importance for setting prices for different groups of served peoples according to the health care financing implementation manual of the country.

Recommendation: The hospital could adopt ABC for estimating the unit cost of services and use the result for various decision making purposes.

Exchange rate: 1USD=Br. 17.22 as of Dec. 30, 2011. CBE

Key words: Activity-based costing, Clinical laboratory tests costing, cost driver, cost object, Tikur Anbesa Specialized Hospital.
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AB 07. Frequency and type of pre-analytical errors in Gondar University Hospital

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Background: Even though laboratory data influences up to 70% of medical decisions up to 0.5% of all laboratory test-results have estimated to be erroneous. It has been noticed that as much as 93% of these errors are largely due to lack of standardized procedures in the pre-analytical phase of quality assurance. Hence, knowing the type and frequency of pre-analytical errors is important for improving the quality of laboratory service.

Objective: To assess types and frequency of pre-analytical errors in Gondar University hospital.

Methods: This study was a cross sectional study that involved prospective evaluation of request papers and samples send to university of Gondar hospital laboratory for hematological and clinical chemistry analysis. Data was collected by laboratory professionals and summarized in to different categories of pre-analytical quality indicators.

Results: A total of 1533 (750 for hematology and 783 for clinical chemistry) samples with their respective request papers were evaluated in this study. In general, none of the request papers contain all the information they should contain. One or more of patient identification parameters were missed in 8.7% of the request papers. Name of the requesting physician and address of the sender were missed from 44.5% and 6.5% of the request papers. None of the requesting physicians mentioned the clinical information of the patients. Examination of the samples showed that 0.98%, 2.8% and 0.98% of the samples were hemolyzed, insufficient for analysis and clotted respectively.

Conclusion: This study showed the existence of different pre-analytical errors in the laboratory studied. Now the laboratory can evaluate itself based on some of the pre-analytical quality indicators and should strive for improving its quality for maximum patient benefit.

Key words: Laboratory service, Quality improvement, Pre-analytical errors

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BACKGROUND: Diabetes mellitus (DM) has risen dramatically over the past two decades and is expected to keep rising the next 20 years. It is predicted that sub-Saharan Africa will have the highest growth in the number of people with diabetes of any region in the world. Blood glucose level and glycated hemoglobin determination can be used for diagnosis and then monitoring of diabetes and so can predict the risk of diabetic complications.

OBJECTIVE: To assess glycemic control among diabetic patients using glycated hemoglobin in Jimma University Specialized Hospital.

METHODS: Cross-sectional hospital based study was conducted on 148 diabetic patients from diabetic clinic of JUSH from 1–31 May 2012. Glycated hemoglobin from whole blood and random blood sugar, creatinine and urea from plasma was taken from every consented diabetic patients coming for routine follow up visit during the study period. Interviewer collected the socio-demographic data and clinical information after ethical approval. Five percent of the total sample size was used as a pretest before the actual commencement of data collection.

RESULTS: All of the study participants were on treatment with mean glycated hemoglobin level (HbA1) and RBS of 7.6% and 280mg/dl, respectively. Using HbA1, 88 (59.5%) of patients had poor glycemic control and thus were at higher risk of developing diabetic complications. Among all the study subjects with poor glycemic control, 17 (70.8%) were those with the age range from 15-30 years; 38 (62.3%) were female patients; 56 (60.8%) were urban dwellers; 31 (67.4%) were illiterate, 16 (69.6%) were those with BMI less than 18.5 kg/m2 and 46 (61.4%) were those taking injectable drugs. Among 136 patients whose clinical history were reviewed, 72 (52.9%) had one or more documented history of major microvascular complications majority of which were visual disturbance accounting for 29 (21.3%), nephropathy 26 (19.1%) and peripheral neuropathy 18 (13.2%). Eighty-four (61.8%) had poor glycemic control out of which 46 (54.7%) had already documented history of one or more diabetic complications but the remaining 38 (45.2%) had no documented history.

CONCLUSION AND RECOMMENDATIONS: Even if all of the diabetic patients were on treatment, the mean HbA1 level as well as random blood sugar level of the study subjects were above the normal range indicating poor glycemic control. More than half of diabetic patients in JUSH had poor glycemic control and were at higher risk of developing diabetic complications or already developed the complications. Accordingly it was recommended to trace the cause of such alarming rate of poor glycemic control by conducting different researches so that to alleviate the problem.
AB 09. Prevalence of Endometrial Tuberculosis among Patients Undergoing Endometrial Biopsy at Tikur Anbesa Specialized Hospital, Addis Ababa, Ethiopia

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Background: Female genital tuberculosis (FGTB) is known to cause severe tubal disease leading to infertility and its incidence parallels closely with the overall prevalence of tuberculosis (TB) in a community. Its magnitude is underreported because diagnosis is difficult and requires invasive techniques. Investigation with advanced microbiological techniques may allow for easier, fast and correct diagnosis and treatment that may help to prevent complications.

Objective: To determine the prevalence of endometrial tuberculosis among women who underwent endometrial biopsy for evaluation of various conditions at Tikur Anbesa teaching referral hospital and characterize the isolates.

Materials and Methods: A cross-sectional study was conducted on women for whom endometrial biopsy sample was taken for the diagnosis and treatment purpose of different gynecologic problems at Tikur Anbessa Specialized Hospital (TASH), Gynecology Outpatient Department (OPD), during December 2011 to August 2012. A total of 152 participants were included in the study. The left over biopsy samples were processed for culture on Löwenstein-Jensen media and subjected to DNA extraction and direct PCR using IS1081 primer pair. The culture isolates were further analyzed using deletion typing for species identification and multiplex PCR for genus typing.

Result: IS1081-PCR identified 7/152 (4.6%) biopsies as endometrial tuberculosis. Only four of the seven (4/152, or 2.6%) were positive by culture. The prevalence of endometrial Tuberculosis (TB) was 2.6% (4/152) but the prevalence became 4.6% (7/152) with IS1081-PCR method. On the other hand histological examination identified only 2/152 (1.3%) as suggestive of endometrial tuberculosis. Only one of these samples was positive with both IS1081-PCR and culture. All of the four isolates were M. tuberculosis. The agreement between the clinical diagnosis and IS1081-PCR and/or culture, was found to be 0.28. Taking culture as gold standard, the sensitivity and specificity of IS1081-PCR were 100 % and 98 % while the sensitivity and specificity of histology were 25% and 50% respectively.

Conclusion: We have shown that M. tuberculosis is relatively frequently encountered in endometrial biopsy but the true magnitude of endometrial TB requires thorough investigation and may be missed with histopathological examination alone.

Key Words: Endometrial TB, Histopathology, IS1081-PCR, Mycobacterial culture,

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AB 10. Antiretroviral Treatment Associated Hyperglycemia and Dyslipidemia among HIV Infected Patients at Burayu Health Center, Addis Ababa, Ethiopia

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Introduction: Development of highly active antiretroviral therapy (HAART) has brought significant suppression of viral replication, decreasing morbidity and mortality and dramatically transforming HIV into chronic disease. However, maintaining patients on HAART for long term may be restricted by a heterogeneous collection of unexpected metabolic abnormalities, including dysregulation of glucose and lipid metabolism.

Objective: To assess antiretroviral treatment associated hyperglycemia and dyslipidemia among HIV infected patients at Burayu Health Center, Addis Ababa, Ethiopia.

Methodology: A cross-sectional study was conducted on adult HIV infected individuals at Burayu Health Center, Addis Ababa, Ethiopia from September, 2011 to May, 2012. Equal number of HAART naïve and HAART initiated patients (n=126 each) were included in the study. Demographic data were collected using a well-structured questionnaire. Total cholesterol (TC), Triglyceride (TG), high density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C) and glucose were determined using COBAS INTERGA 400 chemistry analyzer. The data were analyzed using SPSS version 19 software. Chi-square, student-t-test and logistic regression were used to assess association between variables. P value < 0.05 was considered as statistically significant.

Result: Of 252 study participants, 72.2% were females, mean age was 35.3 years; mean Body mass index was 21.4(kg/m²); mean time with the virus was 20.6 months; 62.7% were married; 48.4% were at primary educational level; 52.4% were house wives; 15.5% were TB-HIV co-infected and 43.7% were categorized as WHO stage one. The prevalence of hyperglycemia, hypertriglyceridemia, hypercholesterolemia, decreased HDL-C and increased LDL-C was 7.9%, 22.8%, 42.1%, 50.8% and 23% in HAART initiated and 5.6%, 10.3%, 11.1%, 73% and 7.1% in non-HAART groups, respectively. First line antiretroviral drugs containing 2 nucleoside backbones (from zidovudine/stavudine/lamivudine/tenofovir) with either nevirapine or efavirenz were taken by study participants. Serum hypertriglyceridemia was more common among patients who received stavudine based than those with zidovudine based antiretrovirals (34% versus 16.4%, P = 0.029).

Conclusion: First-line HAART is associated with potentially atherogenic lipid profile levels in patients with HIV infection compared to untreated patients in our setting. This indicates glucose and lipid profile levels need to be monitored regularly in HIV infected patients taking antiretroviral treatment.
AB 11. Active Case Finding for Pulmonary Tuberculosis and Detection of Drug Resistance among HIV-infected Patients in Gondar, Ethiopia

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ABSTRACT

Background: Patients co-infected with HIV and TB often lacks the classic symptoms of pulmonary TB thus making TB diagnosis difficult. Current practice is to wait for symptomatic persons to present for TB screening, which can result in a delayed diagnosis of TB and consequently continued transmission in the community. The global HIV epidemic may be contributing to increase in MDR-TB prevalence.

Objective: To determine the prevalence of undiagnosed pulmonary TB cases through active case finding including MDR-TB, among HIV-infected patients.

Methods: A cross sectional study was conducted from February 2012-November 2012 among HIV-infected patients aged ≥18 years attending the ART clinic of the University of Gondar (UOG) hospital. A pre-tested questionnaire was used to collect socio-demographic and clinical data. Sputum samples were collected for direct AFB microscopy and Mycobacteria culture. A PCR based RD9 deletion typing and genus typing were performed from all culture positive AFB isolates and drug-susceptibility testing was done for first line anti-TB drugs keeping SOP’s. Statistical analysis was performed using SPSS Version 20.0 software packages.

Results: Our results showed that out of 250 HIV-infected participants, screened for TB through active case finding, 9(3.6%) were smear +ve /culture +ve and 6(2.4%) were smear -ve /culture +ve. RD9 typing showed that out of 15 isolates, 10(66.6%) were M. tuberculosis species, 1(6.7%) belonged to Mycobacterium genus and four isolates were non Mycobacteria. Therefore, a total of 11 undiagnosed pulmonary TB infections were identified. All isolates were sensitive to RIF, INH and EMB. Mono-drug resistance was identified only for STM in one newly diagnosed TB patient and MDR-TB was not observed.

Conclusion and Recommendation: The prevalence of undiagnosed PTB infection among HIV-infected patients in Gondar was 4.4%. Active screening of known HIV-infected individuals for TB, with at least one TB symptom should be considered.

Key words: Drug resistance, HIV, Mycobacterium tuberculosis

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Background: Human onchocerciasis is one of the neglected tropical parasitic diseases caused by *O. volvulus* and results in devastating skin and eye diseases mostly in Africa. Parasitological and epidemiological studies showed that onchocerciasis is highly endemic in Ethiopia particularly in Northwestern and Southwestern parts bordering Sudan.

Methods: Community based cross-sectional study was conducted to assess the epidemiology of onchocerciasis among inhabitants close to Ivermectin treated villages from April 23 to May 23, 2012. Both the households and study participants were selected by simple random sampling and the data on sociodemographic characteristics, knowledge, attitude and practice were collected using a structured questionnaire. Clinical examination was undertaken for onchocercial skin diseases and two skin snips were collected and examined microscopically and the number of microfilaria were counted. Bivariate and multivariate analysis was undertaken by using SPSS version 16.0 statistical packages for dependent and independent variables.

Result: A total of 440 individuals were examined for onchocercial skin diseases and microfilariae of *O. volvulus*. Based on parasitological examination, the prevalence of *O. volvulus* was 22.5% with 26.6% for males and 17.6% for females. In clinical examination, the prevalence of onchocercial skin diseases was 29.80%. The community microfilarial load was 2.70 microfilaria per skin snips. Among different sociodemographic variables and other risk factors, only duration of stay in the village was the independent predictor for *O. volvulus* infection. Individuals who were stayed for 1-10 years in the study area were at lower risk of infection than above 60 years (AOR =0.15, 95% CI, 0.035, 0.682). Three hundred eighty eight (88.2 %) of the participants reported that, they didn’t hear about onchocerciasis by its local name before current study.

Conclusion and Recommendations: Based on the parasitological examination, the endemcity level of onchocerciasis was classified as mesoendemic. Sustainable vector management and mass drug administration (Ivermectin) are highly recommended. Assessing villages adjacent to treatment area should be done periodically to determine the status of the disease.

Keywords: Onchocerciasis, Endemicity, Microfilaria, Onchocercial skin disease

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Posters
P 01. Does Maternal Iron Deficiency Anemia has an Effect on the Iron Store of Term Newborns?

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**Background:** Iron deficiency anemia (IDA) is a severe form of iron deficiency. It most commonly occurs in pregnant women and infants.

**Objective:** The aim of this study was to assess the effect of maternal iron deficiency anemia on iron store of term newborns.

**Methodology:** A cross-sectional study was conducted from December 13, 2011 to February 20, 2012 in Obstetrics and Gynecology departments of St. Paul’s hospital, Selam and Gulelie health centers. A total of 95 pregnant women and their respective newborns that fulfilled the inclusion criteria were included in the study. Blood samples were collected from the mothers and cord of newborns and analyzed for complete blood count and serum ferritin levels using Cell-dyn 1800 and Cobas e 411 analyzers, respectively. Women were classified into three groups as: iron deficient anemic, iron deficient non anemic and non iron deficient non anemic based on hemoglobin and serum ferritin values. All pre-analytical, analytical and post-analytical quality aspects were thoroughly controlled. For statistical analysis MedCalc® software Version 12.1.4 was used.

**Result:** Newborns of iron-deficient anemic pregnant women (152.6ng/ml) had significantly lower levels ($p = 0.0008$) of serum ferritin than non iron deficient non anemic pregnant women (225.9ng/ml). Besides, newborns ferritin and hemoglobin levels have significant correlation with hemoglobin ($r_s = 0.256, p = 0.0122$; $r_s = 0.226, p = 0.0279$), and ferritin ($r_s = 0.366, p = 0.0003$; $r_s = 0.268, p = 0.0086$) levels of the mothers.

**Conclusion & recommendation:** The study demonstrated that maternal iron deficiency anemia has a significant impact on the iron store levels of their newborn. Further investigations including larger population of pregnant women with different stages of anemia should be performed to verify the interrelation between maternal IDA and iron store of newborns.

**Key words:** iron deficiency anemia, newborns, ferritin, hemoglobin
Anemia and risk factors in HAART naïve and HAART experienced HIV positive participants in south west Ethiopia: A comparative study.

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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: 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 30, 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 hematological, 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 version 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.

Key words: Anemia, HIV, Highly Active Antiretroviral Therapy
Prevalence and predictors of maternal anemia during pregnancy in Gondar, North West of Ethiopia: a cross sectional study

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Background: Anaemia is a global public health problem with major consequences for human health, social and economic development which assumes eminence in pregnant mother. Even though pregnancy anemia is a multifactorial in etiology and a major contributing factor for maternal morbidity and mortality, the prevalence and its predictors are not well studied in Ethiopia. Therefore, the aim of this study was to assess the prevalence of maternal anemia and its predictors among pregnant women attending antenatal care service at Gondar university hospital, North-west Ethiopia.

Method: Institution based cross-sectional study was conducted from March 1 to April 30, 2012. A total of 302 pregnant women were selected and included in the study using systematic random sampling technique. A Structured pretested questionnaire was used to collect data about socio-demographic, nutritional and obstetrics factors. Clinical history and laboratory tests were also used to obtain data on medical conditions. Bivariate and multivariate logistic regression models were used to identify predictors of anemia.

Result: The overall prevalence of anemia was 16.6%, majority were mild type (64%), and morphologically normocytic normochromic (76%). The prevalence was higher at third trimester (18.9%) compared to second and first. Low monthly family income (AOR [95% CI] =3.1[1.19,8.33]), more than four family size (AOR[95% CI]= 4.14[4.13,10.52]), Hook worm infection (AOR[95% CI]= 2.72[1.04, 7.25]) and living with HIV/AIDS (AOR[95% CI]= 5.75[2.40, 13.69]) were the independent predictors of maternal anemia.

Conclusion: The prevalence of anemia was high; mild type and Normocytic normochromic anemias were dominant. Low monthly family income, large family size, Hook warm infection, and living with HIV/AIDS were found to be the independent predictors of anemia. Hence, for pregnant women, efforts should be put forth for early diagnosis and management of HIV and hook warm infection in addition to nutritional counseling with special emphasis for those having low income and high family size.
**Recommendation:** Anemia among pregnant women was high, mainly in those with HIV/AIDS, large family number, and low income mothers. Thus, to reduce occurrence of anemia, antenatal follow-ups including diagnosis of anemia should be more expanded in the region.

**Key words:** Maternal anemia, pregnancy, Prevalence, predictor, Gondar

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P 04. Acid Fast Bacilli Smear Microscopy Proficiency of 2012 GC Graduating class Students in the Field of Medical Laboratory Science in among Three Universities of Ethiopia.

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Background: Microscopy remains the mainstay of rapid tuberculosis (TB) case detection. In most countries, especially those with the highest burden of TB, the direct Ziehl–Neelsen (ZN) smear is still the most common test. However, its sensitivity depends on the diligence of the technician and on use of the appropriate technique. The co-epidemics of Human Immunodeficiency Virus (HIV) infection and TB, especially in Africa, and concerns that the ZN smear has lower sensitivity in those with HIV infection, have stimulated interest in practical methods to improve microscopy.

Objective: To assess the performance of graduating batch students in field of Medical Laboratory Science in detecting and quantifying Acid Fast Bacilli using sputum smear microscopy.

Methods: A cross-sectional study was conducted in Addis Ababa University, Jimma University, and University of Gondar. All graduating medical laboratory science students with a total number of 124 were included. Percentage of Major error (HFP and HFN) and minor error (LFP, LFN and QE) were dependent variables while grade of bacteriology course, sex and age of the student were independent variable of the study.

Results: Of the 124 medical laboratory Science 2012 GC graduating batch students evaluated by proficiency test (PT), the mean score was 87.1% and overall PT score ranged from 40-100%. Overall there were 24(19.1%) major errors and 117 (81%) minor errors. From panel slide reading, the total number of students that report major error were 18(14.5%), that is, 14(11.3%) HFN, 2(1.6%) HFP and 2(1.6%) HFN and HFP. In this study, there were a total of 80(64.5%) students that report minor error 10(8.1%) LFP, 31(25.0%) LFN, 14(11.3%) QE and others reported multi error 19(15.5%) LFP and QE, 4(3.2%) LFN and QE while 2(1.6%) reported LFP and LFP.

There was a significant statistical association between acid fast bacilli microscopy proficiency score and grade (score) of introduction to bacteriology and diagnostic bacteriology courses (p<0.05, p=0.04, CI=95%).

Conclusion and Recommendation: In this study, the proficiency to read sputum smear by graduating batch students who have taken pre-service training (students from University-coded 002) were better than those who did not take the training. Thus, the study highlights the importance of strengthening practical training in improving the Acid fast bacilli microscopy results.

Key words: AFB; Medical Laboratory technology students, Major errors; proficiency

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Background: Several factors including socio-economic and access to health facility govern burden of intestinal parasitic infections in human. Collection of epidemiological data from hard to reach areas will help to identify high-risk communities and formulate appropriate intervention.

Objective: To determine the prevalence of intestinal parasites and associated risk factors among Zay people residing in three Islands around Lake Ziway.

Methods: A total of 444 individuals residing in three Islands around Lake Ziway were involved in this cross-sectional study. Stool samples were analyzed using the wet mount and formol-ether concentration methods. Demographic and other risk factors data were collected using interviewer-administered questionnaire. Data were analyzed using STATA version 10. Associations were determined using chi square test. Bivariate and multivariate analyses were employed to identify risk factors and P-values less than 0.05 were taken as statistically significant.

Results: Of the total examined, 52% (231) of the participants were children under 15 years and the remaining 48% were 15 to 85 years of age. While 72.8% were positive for at least one intestinal parasite, single, dual and triple infections were found in 42.1%, 23.9% and 6.3%, respectively. Two participants (both children) were found harboring 4 intestinal parasites. The commonest parasitic infections were Entamoeba histolytica/dispar (51.4%), followed by Schistosoma mansoni (17.8%), Giardia lamblia (14.4%), Trichuris trichiura (10.8%), Taenia species (5.6%), Hymenolepis nana (4.5), Ascaris lumbricoides (4.1%), Hookworm (0.7%) and Strongyloides stercoralis (0.2%). Though the majority (89%) responded washing of hands after toilet use, 52% had no latrine and >95% use the lake water for drinking, cleaning or both. About 36% responded they had no information about water born and related diseases, 31% never heard about Bilharzia. Fishing and farming are the main source of income; and fish is the main food. None of the selected parameters show a statistically significant association in the multivariate model except being in the age group>15 years, which was found to be protective with marginal significance, after adjusting for hand wash, latrine availability and lake usage for any purpose (AOR=0.59; 95%CI= 0.34-1.03, p= 0.06).

Conclusion: The observed high rate of intestinal parasitoses (72.8%) in these communities of Lake Ziway Islands, which are accessible only by using boats, warrants targeted intervention.

Key words: Intestinal parasites, targeted intervention, Lake Ziway
Prevalence and risk factors of *Helicobacter pylori* among adults at Jinka Zonal Hospital, Debub Omo Zone, Southwest Ethiopia

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**Background:** Nearly 50% of the world’s population is estimated to be infected with *H. pylori*, but the prevalence varies greatly among countries and among population groups within the same country. The overall prevalence of *H. pylori* infection is strongly correlated with socioeconomic conditions.

**Objective:** To determine the prevalence and the possible risk factors for *Helicobacter Pylori* infection among adults at Jinka Zonal Hospital, Debub Omo Zone, Southwest Ethiopia.

**Methods:** A hospital based cross-sectional study was conducted among 349 adults from December 2012 to February 2013. All stool specimens were screened for fecal *H. pylori* antigen. Besides, all participants were interviewed using structured questionnaire.

**Results:** A total of 150(43%) males and 199(57%) females were involved in the study. The age of participants ranged between 20-89 years with a mean age of 36.7 ± 14.7 and median 32 years. The overall prevalence of *H. pylori* infection was 50.7% (177/349). *H. pylori* infection were positively associated with agrarian occupation [OR=1.85 (95%CI 1.02- 3.39, p=0.045)]; being male [OR=1.98(95%CI 1.42-3.29, p=0.011)], living with more than 5 persons in the same house, [OR=1.53(95%CI 1.00-2.34, p=0.048)]; practicing open field defecation/no toilet use, [OR=6.75(95%CI 2.11-21.61), p=0.001)]; never washing hands after toilet, [OR=2.86 (95%CI 1.30-3.27, p=0.009)]. But a minimum alcohol consumption might protect infection against *H. pylori* bacteria, [OR=0.39(0.23-0.67, p=0.001)].

**Conclusion and recommendation:** The overall prevalence of *H. pylori* infection in Debub Omo Zone was 50.7%. This relatively reduced prevalence might be due to effect of *Moringa oleifera*, serve as a traditional throughout the communities. Increasing the awareness of the communities toward good hygienic practices might reduce the transmission of *H. pylori* infection.

**Key words:** H. pylori, Risk factors, stool antigen test

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The Renal Function Test Profile of HIV Positive Patients Before And After Initiation of HAART In St. Paul’s General Specialized Hospital

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Background: A variety of ART related effects, including proteinuria, renal tubular damage and overall declines in Glomerular filtration rates have been noticed in HIV patients. So assessing the kidney states of HIV infected patients is essential component to monitor adverse reactions to ART.

Objective: To assess the renal profile of HIV positive patients before and after initiation of HAART.

Method: A retrospective cohort study was conducted among HIV infected individuals who were taking HAART and visit St. Paul’s generalized hospital laboratory for renal function testing from 1999-2001Eth.C.

Result: A total of 2026 HIV positive patients started HAART between 1999-2001E.C in St. Paul’s ART clinic. Among them 380 HIV patients, with two and three visits for CD4+ and renal function tests (creatinine & urea), were recruited to the study. Of whom 240 (63.2%) were female and 140(36.8%) male. The mean age of the participants was 36.84 years (ranging between 19 and 68 years). Out of 380 patients, 104(27.4%) were taking 1b30, 94(24.7%) were using 1a30, 77(20.3%) were taking 1d, 57(15%) 1c, 14(3.7%) tdf/3tc/efv, 12(3.2%) use tdf/3tc/nvp and 22(5.7%) were taking other drug types. The presence of association between renal profiles abnormality and drug type was analyzed by using linear regression. For almost all drugs there was no significant association (p>0.05). But for those patients taking the drug TDF/3TC/NVP significant association was seen (p=0.033) between the drug exposure and urea abnormal result in the 2nd visit.

Conclusion: HAART resulted in improved Immunological status of HIV patients with remarkable increase in CD4 T lymphocyte count but at the same time there was an increase in Azotemia. Thus RFT should be monitored regularly.

Key words: RFT, HAART, CD4 T lymphocytes

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P 08. Prevalence of Hepatitis B Virus and Thyroid Dysfunction in HIV Positive and HIV Negative Pregnant Women in Selected Health Facilities in Ethiopia

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Background: While Hepatitis B Virus (HBV) infection during pregnancy is associated with high risk of maternal complications and high rate of vertical transmission, there is limited data on HBV prevalence in Ethiopia, particularly in HIV infected pregnant women. Moreover, thyroid dysfunction in pregnant women with and without HIV and/or HBV co-infections is not well investigated.

Objective: To determine and compare the prevalence of HBV infection and thyroid dysfunction in HIV positive and HIV negative pregnant women in selected health facilities in Ethiopia.

Method: A comparative cross sectional study was conducted on 514 stored serum samples (262 HIV positive and 252 HIV negative). The samples were collected from pregnant women from 14 selected health facilities (Addis Ababa (n=209), Bahirdar (n=118), Gondar (n=59), Jimma(n=61), Harar(n=33) andDirewada(n=34)) that were participated in the 2009 National antenatal care based HIV sentinel surveillance. Demographic and clinical data were extracted from the National ANC based sentinel surveillance database at Ethiopian Health and Nutrition Research Institute (EHNRI). The stored sera at EHNRI were tested for HBsAg using ELISA kits (Hepanostika HBsAg Ultra, Biomérieux, Marcy L’Etiole, France) and for thyroid function tests using Elecsys 2010 immunoassay analyzer. A Mann-Whitney U test for continuous variables and chi square test or Fisher’s exact test for categorical variables was used for statistical analysis.

Result: The overall prevalence of HBsAg was 7.8% (95%CI: 5.5-10.1). It was highest in Gonder(13.6%) and Jimma(13.1%) and lowest in Addis Ababa(5.3%). Although it was not statistically significant, the prevalence of HBsAg in HIV-positive pregnant women (23/262(8.8%)) was higher compared to that of HIV-negatives (17/252(6.8%)) (P=0.39). Of the 202 pregnant women tested for thyroid function, 49(24.3%) had abnormal thyroid status, of which subclinical hypothyroidism (7.4%) was the most common. Those pregnant women co-infected with HBV and HIV had significantly high rate of abnormally low T4 level (< 6.95 µg/dl) than those not infected with HIV and HBV [4/23(17.4%) Vs 4/83(4.8%); P=0.04]. The risk of abnormal thyroid function was higher for HIV positive than HIV negative pregnant women (AOR=2.2; 95%CI=1.1-4.5).

Conclusion: The overall prevalence of HBV infection was high among the study subjects, while intermediate and high prevalence was observed across the study sites. This finding strongly indicates the need for implementing routine HBV screening program and preventive measures for pregnant women at ANC centers in Ethiopia. The observed high rate of thyroid dysfunctions in HIV and/or HBV infected pregnant women also warrant larger studies on epidemiological and health related consequences of thyroid dysfunctions for better screening and management strategies.

Key words: HBV, HIV, Thyroid dysfunction, Pregnant women.
P 09. Sputum conversion rate at 2\textsuperscript{nd}, 5\textsuperscript{th} and 7\textsuperscript{th} months of anti-TB treatment among sputum smear positive TB patients at public health centers in Addis Ababa, Ethiopia

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\textbf{Background:} Tuberculosis (TB) is a chronic or acute infection caused by \textit{Mycobacterium tuberculosis} that primarily attacks the lungs. TB is a public health threat in every part of the world. About one-third of the world's population has latent TB. Sub-Saharan Africa carried the greatest proportion of new cases per population with over 260 cases per 100,000 populations in 2011.

\textbf{Objective:} To assess sputum conversion rate at 2\textsuperscript{nd}, 5\textsuperscript{th} and 7\textsuperscript{th} months at nineteen health centers on smear positive tuberculosis patients who were taking the anti TB treatment for the past five years.

\textbf{Method:} A retrospective study was conducted at nineteen public health centers in order to collect a five year data (Jan 2007-Sep 2011). Smear conversion rate was determined at 2\textsuperscript{nd}, 5\textsuperscript{th} and 7\textsuperscript{th} months follow up of smear positive patients. For available data HIV status and smear conversion rate was determined. Data was analyzed using SPSS version 17 software.

\textbf{Result:} Of the total sputum smear positive TB patients who had complete data recorded, 5647(93.85\%) showed smear conversion rate at the 2\textsuperscript{nd} month, 336(5.59\%) at the 5\textsuperscript{th} month, 34(0.57\%) at the 7\textsuperscript{th} month while 19(0.3\%) showed no smear conversion rate. Out of the total subjects, 282 (3.2\%) were transferred out to other facilities. Out of the total subjects 282 (3.2\%) were transferred out to other facilities.134 (1.45\%) died for any reason for the course of treatment. 929 (10.4\%) defaulted and for 107 (1.19\%) the treatment failed.

\textbf{Conclusion and recommendation:} Even if there were few patients who showed treatment failure, the smear conversion rate calculated in this study was promising. However; considerable number of patients failed to follow up on the treatment which requires further strengthening of the DOT strategy.

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In Vivo antiplasmodial activities of Echnops kebericho Mesfin and Zingibir officinale Roscoe.

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**Background:** Echnops kebericho Mesfin and Zingibir officinal Roscoe are traditionally used for the treatment of malaria and other ailments in Ethiopia. The root parts of Echnops kebericho Mesfin and Zingibir officinal Roscoe are claimed to have medicinal value.

**Objective:** to evaluate in vivo antiplasmodial activities of 70% ethanol crude root extracts of Echnops kebericho Mesfin and Zingibir officinale Roscoe against *Plasmodium berghei* in adult Swiss albino mice.

**Methods:** The 70% ethanol crude root extracts were obtained from both Echnops kebericho Mesfin and Zingibir officinale Roscoe. Oral acute toxicity test for Echnops kebericho Mesfin was determined in mice by single administration of the crude extract. The in vivo assays were done by administering mice infected with Plasmodium berghei for four consecutive daily doses of the extracts through the intra-gastric route following Peters’4-Days suppressive test.

**Results:** The acute toxicity study showed no significant toxic effects of the extract of Echnops kebericho Mesfin on the organs of animals up to the dose level 5000mg/kg. It was observed that Echnops kebericho Mesfin (1000mg/kg/day) showed the highest antiplasmodial activity and suppressed parasitaemia by 49.53% and 34.66% at dose 500mg/kg/day. Zingibir officinale Roscoe (1000mg/kg/day) suppressed parasitaemia by 32.83%.

**Conclusions:** Acute oral toxicity studies showed the safety of the 70 % ethanol root extract of *E. kebericho Mesfin* in mice with minimal sign of toxicity at higher doses. The 70% ethanol root extracts of *E. kebericho Mesfin* and *Z. officinale Roscoe* possess antiplasmodial activity as seen in their ability to suppress *P. berghei* in mice in a dose dependent manner. The antiplasmodial activities of these plant
extracts support the ethno-botanical studies and reason for the use of the plant material by the traditional medicinal practitioner in Ethiopia. This study thus, provides for the first time, both acute oral toxicity and antiplasmodial activities and confirms the rationale use for their application in traditional medicine for the treatment of malaria in Ethiopia.

**Key words:** *Echnops kebericho* Mesfin, *Zengibir officinale* Roscoe, *Plasmodium berghei*, *Oral acute toxicity*, *antiplasmodial*
P 11. Impact of SLMTA on laboratory quality management system under AA city government (@ government health sector)

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¹Addis Ababa Health Research and Laboratory version process, ²Addis Ababa University

Background: after the launching of WHO-AFRO Stepwise Laboratory Accreditation Process in Ethiopia, from the selected laboratory for accreditation purpose by the national, AAHRL is the only lab score four star based on WHO AFRO assessment checklist. After this the health bureau heads and officials of Addis Ababa city government take a direction to cascade this program to the health institutions (Hospitals and health centers).

Methods: Baseline assessments were done and the result was analyzed and presented to the higher managements of the health institution. The AAHRL team provided 2 time mentoring and coaching in each phase of training and conduct review meeting with higher management to evaluate improvement project progress. Quality improvements were measured at baseline and at intervals during the mentorship using the WHO-AFRO SLIPTA checklist and scoring system. The laboratory manager take managerial job tasks, forms the basis of the hands-on, activity-based curriculum and multiple workshops with intervening site visits to support IP.

Results: At base line, laboratories were at the SLIPTA zero star rating, all the 31 laboratories assessed and were found below 1 Star-level (minimum for 1 Star: 55% of Standard), Average score: 43 / 246 points with Highest score (17.4%): 85 and Lowest score: 27 measured based on the WHO-AFRO checklist. After Mentorship & coaching by the AAHRL team, most laboratories had improved from zero to two Star which is a significant improvement in TAT for each test has been established and communicated to the clients and clinical providers The laboratories were enabled to conduct Regular Staff Meeting and record Minutes of the meetings. Floor plan and work flow mapping was designed & posted. Archive room, Mini-store room to manage laboratory supplies. Stock out and sample rejection rate minimized, IQC Recording forms, Lab Handbook, Quality Manual were customize and adopted, etc.

Conclusion: Mentoring, onsite and offsite coaching and training improve not only the quality of test results, but also clinicians trust and leads to reliable and accurate test results, which in turn to accelerate the progress of laboratories towards achieving accreditation.
P 12. Comparison of Cryptococcal Antigenemia between Antiretroviral Naïve and Antiretroviral Experienced HIV Positive Patients at Two Hospitals in Ethiopia

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Background: Cryptococcal meningitis is a major cause of HIV/AIDS-related deaths in Africa. Cryptococcosis is a neglected killer, however, the disease can be prevented by early cryptococcal antigen (CrAg) screening and preemptive antifungal treatment during a prolonged period of detectable, subclinical infection.

Objective: to determined the prevalence of cryptococcal antigenemia in comparison to CD4 count and clinical symptoms.

Methods: A total of 254 consenting HIV-infected participants were surveyed to obtain demographic information and clinical history. All participants had CD4 count, and serum CrAg was measured by latex agglutination at two sites in the Oromia region of Ethiopia.

Results: Of the 254 participants, 127(50.0%) were ART-naïve, 121(47.6%) were ART-experienced, and 6(2.4%) were ART-defaulters. The prevalence of cryptococcal antigenemia was 10.2% overall being, 14.2% among ART-naïve, 4.1% among ART-experienced, and 50% (3/6) among ART-defaulters, irrespective of CD4 count. Cryptococcal antigenemia was more frequently detected from ART-naïve patients (p=0.012) and ART-defaulters (p=0.001) compared with ART-experienced. Serum CrAg positivity was 20.9% in persons with CD4 ≤150 cells/µL, 12.2% in 151-200 cells/µL, 5.8% among 201-350 CD4/µL, and none above 350cells/µL. Potential meningitis symptoms were common in the outpatient cohort irrespective of CrAg-status, with only fever and altered mental status statistically more common in CrAg-positive compared to CrAg-negative persons (P<0.05), yet no symptom had a positive predictive value >33%.

Conclusion: We report a 20.9% cryptococcal antigenemia prevalence among those with CD4+ T cells count ≤150cells/µL, irrespective of ART status, with even higher CrAg prevalence in ART naïves and ART-defaulters. These groups are target populations for CrAg screening at entry into HIV care.

Key words: ART-experienced, ART-naïve, CD4+ T-cells count, cryptococcal antigenemia, HIV-infected and Ethiopia.

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Evaluation of Laboratory Workflow: A case of Blood specimen collection and chemistry blood test process in Tikur Anbessa Specialized Teaching Hospital, Addis Ababa.

Original Articles
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Abstract
Background: Although well design laboratory is in place, it will be compromised if the workstation and workflow of laboratory are not designed well. In Ethiopia, there is no baseline information regarding evaluation of laboratory workflow.

Objective: To evaluate laboratory workflow of blood specimen collection and chemistry blood test process.

Method: A cross-sectional study design was used. Qualitative and direct observational methods were conducted. Value stream mapping (capture details of process), spaghetti diagrams (map motion); measure times (Cycle time-from beginning to completion and lead time) was used.

Result: A total of 28 specimen collection steps and 26 chemistry laboratory steps were identified. The average time of samples waiting at reception prior to delivery to respective laboratories were decreased as more samples collected within short time interval. The average cycle times of 489 blood sample drawing process were 3.58 minutes and 76.5% (374) of blood samples were drawn with an average cycle time of 1.0 to 5.0 minutes. A total of 8 non-valued added steps were recognized from the existed chemistry laboratory workflow. A total of 1231.31 minutes were identified as non-value added (waste) time from existed workflow of chemistry blood samples testing process. Clinical chemistry laboratory process cycle efficiency was 56.6%.

Conclusion: Laboratories should identified non-value added process or steps or activities and by eliminating those wastes and implementing a powerful business improvement tools like lean method possible to maximized customer needs. Laboratories must assess their workflow periodically to identify wasteful practices and focused only value-added activity to increase the process cycle efficiency and productivity.