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External End-of-Project Evaluation: Ethiopian Public Health Training Initiative Phase II (EPHTI II)

Final Report

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External End-of-Project Evaluation:
Ethiopian Public Health Training Initiative Phase II (EPHTI II)

This is an evaluation report carried out by team members:

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Acronyms

AHOTP	Accelerated Health Officer Training Program
AIDS	Acquired Immune Deficiency Syndrome
AMREF	African Medical and Research Foundation
CEU	Continuing Education Unit
EPHTI	Ethiopia Public Health Training Initiative
FMOH	Foreign Ministry of Health
HAPN	Health AIDS Population and Nutrition
HO	Health Officer
HR	Human Resource
HRH	Human Resources for Health
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MOE	Ministry of Education
MOH	Ministry of Health
NB	Notice Bulletin
PB	Post Basic
PHC	Public Health Care
RHB	Radiologic Health Branch
SNNP	Southern Nations Nationalities and Peoples
SOW	Scope Of Work
TMG	The Mitchell Group
USAID	United States Agency for International Development

Executive Summary

The Ethiopia Public Health Training Program (EPHTI) was initially designed as a result of conversations between US President Jimmy Carter and the current Prime Minister of Ethiopia. The overall objectives of the EPHTI program are: the in-country development of teaching materials to support public health training curricula; the strengthening of instructors through training in pedagogical, supervisory and writing skills; and the enhancement of the teaching-learning environment.

The current EPHTI-II is a three-year direct cooperative agreement (signed in September 2005) between USAID and The Carter Center. USAID has invested $7.1 million in the EPHTI-I project and $7.5 million in EPHTI-II. The main goal of EPHTI-II is the training of 5,000 health officers in approximately twenty selected hospitals throughout Ethiopia. This Accelerated Health Officer Training Program (AHOTP) was the focus of this evaluation.

The Ethiopian Federal Ministry of Health and USAID both attach critical importance to the Health Officer cadre because, like Health Extension Workers, they are a key vehicle for achieving the targets of Ethiopia's Third Health Sector Strategic Plan as well as Ethiopia's Millenium Development Goals and USAID's Foreign Assistance Framework.

As stated by USAID/Ethiopia in the scope of work for this final evaluation, the main uses of the evaluation results are for "designing a planned extension of EPHTI-II as well as the re-design of future programs for pre-service training for other key primary health care cadres throughout the country". The target number of students who were to be trained under EPHTI-II includes (a) 3,000 "post-basic" students who are all trained nurses and (b) 2,000 "generic" students who are undertaking basic training. The project was launched in December 2005 at four of the five participating universities (Jimma, Haramaya, Hawassa and Mekelle). Gondar University started four months later. According to the Carter Center records, as of May 2008, the student population comprised 2917 post-basic students and 1519 generic students. Also, according to the Carter Center, over 300 instructors, who are mainly from the hospitals that are participating in the Accelerated Training of Health Officers, have been trained in either training methodologies (158) or HIV/AIDS core competencies (156). Further training of 100 instructors in training methodologies is scheduled to take place later in 2008. Additionally, the training curriculum and training materials, as well as needed supplies and equipment, have been distributed to all participating universities and hospitals and 20 Toyota Land Cruisers have been purchased and distributed to the hospitals that are participating in the Accelerated Health Officer Training Program. Because the first class of student Health Officers trained under EPHTI-II has not yet graduated, it was not possible for the evaluators to assess the outcomes and impact from the EPHTI-II.

A main finding of the evaluation was that the Accelerated Health Officer training Program is highly appreciated and valued by all the stakeholders and it continues to have great potential to ultimately impact the health of rural communities in Ethiopia by contributing to the goals of Ethiopia's Third Health Sector Development Plan, the Millenium Development Goals and USAID's Foreign Assistance Framework. The commitment of all the stakeholders to the success of EPHTI-II is strong. However, the evaluators identified a series of important challenges in the inter-related areas of monitoring and evaluation, project management, training design and quality of training.

Crucial deficits in the area of **monitoring and evaluation** not only hampered the work of the evaluators but also meant that important information for making project management decisions is not

readily available. For example, there is no clearly-stated logic model, or diagram, showing project inputs, activities, outputs, desired outcomes and anticipated project impact nor is there a centralized project data-base that contains information about students or instructors. This means that detailed analysis of important indicators, such as student attrition or instructor turnover, is not possible. Additionally, the project's current monitoring and evaluation framework lacks quality indicators.

The evaluators found that one of the key **management** strengths of EPHTI-II has been the achievement of establishing and sustaining a partnership that not only crosses institutional lines between the health and education sectors but also brings together several health bureaus, universities and hospitals from different Regions within a management framework that is acceptable to all the stakeholders. This is to be commended. Also, enormous, and largely successful, efforts have been made to make sure that the training sites for AHOTP have the needed supplies of training materials, supplies and equipment. It is too early to assess whether these efforts are sustainable. However, critical management challenges remain. For example, there is not yet agreement among key project stakeholders regarding whether project inputs are fixed or negotiable. As a result, when two of the participating universities unilaterally changed the duration of the Health Officer training course, there was much discussion among the project partners as to whether or not this was acceptable. Also, there are no mechanisms for securing student input into project decision-making and mechanisms for resolving student complaints do not seem to be working. Since there is little evidence that the recommendations from the final evaluation of EPHTI-I have been implemented, important lessons from EPHTI-I have not been carried forward into EPHTI-II. The evaluators noted that, because of the current lack of ready and reliable access to the Internet in many of the participating institutions, cell phones are widely used for project communications. However, some of the inherent advantages of this technology have not yet been identified, and capitalized upon, by project management.

Although stakeholders rarely mentioned the Health Officer training curriculum, the evaluators noted that the overall **design for the training** of Health Officers, is based on the Health Officer profile that is provided at the beginning of the curriculum. They also noted a lack of clear and consistent threads linking this profile with the curriculum and inconsistency between the profile and the available training materials. As a result, many of the training modules, with the exception of some of the lecture notes, are not being used for the Health Officer training.

The evaluators noted that, in general, the issue of **quality**, particularly in the area of clinical training, has received inadequate attention and several quality concerns, such as sub-standard service-delivery in at least one of the participating hospitals, are described in the full report.

Based on these assessment findings, the following recommendattions are offered to strengthen the design of the planned extension of EPHTI-II and the re-design of future pre-service training for other key primary health care cadres.

In order to address some of the deficiencies in the area of **monitoring and evaluation**, the evaluators recommend that a clear "logic model" showing project inputs, activities, outputs, desired outcomes and anticipated impact should immediately be developed. As soon as this has been done, the monitoring and evaluation framework should be redesigned not only to be consistent with the project logic model but also to include quality indicators. This revised monitoring and evaluation system should allow for simple reporting by the participating universities and hospitals through the use of cell-phone technologies that are already widely available in Ethiopia and should accommodate audio-visual data.

These technologies have the potential to be particularly useful when making presentations about the Accelerated Health Officer Training Programs to potential funders.

In order to address **management** issues and build upon the strong spirit of partnership that has already been engendered in the EPHTI, the evaluators recommended that decisions as to which project inputs are "negotiable" and which are "non-negotiable" should be made as a matter of urgency. The evaluators also recommend that staffing of the contractor's office in Addis should be enhanced as soon as possible through the recruitment of a senior Addis-based professional with strong skills in monitoring and evaluation, curriculum development, performance assessment, management, training, community health and resource development.

In the area of **training design,** the evaluators recommend that a detailed review of the training curriculum as well as the Health Officers' profile and job description be undertaken. The review would include determination of: the most desirable balance between public health and medical care in the Health Officer profile, the roles of Health Officers in relation to the roles of Health Extension Workers and their Nurse Supervisors, and detailed statements of the specific skills and competencies required to effectively and efficiently implement the tasks listed in the profile and job description. The evaluators also recommend that the existing training materials, including the modules and lecture notes, be reviewed in detail by an instructional design specialist to address the need for clear "threads" between the Health Officer "profile", the desired Health Officer skills and competencies, the content of the materials and the actual uses made of the materials by Health Officers and their instructors. (are you recommending a second staff person or a consultant ?– it is ok as is and let USAID sort it out)

In order to assure that needed standards of service-delivery at sites where students undertake their **clinical practice** are met, the evaluators recommend that an *ad hoc* sub-committee of the Management Committee for the Accelerated Health Officer Training Program be immediately established and charged with the responsibility for determining specific and feasible arrangements for bi-annual assessment of each training site, monitoring of all clinical assessments of students, analysis of the results of all clinical assessments (using the information contained in student and instructor data-bases) and the establishment of an accreditation system for training sites.

The evaluation report provides additional information and more recommendations to serve stakeholders in their planning and development of the extension of the EPHTI II project .

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INTRODUCTION

The need for trained health professionals to staff hospitals and health centers that serve communities in remote parts of Ethiopia has been recognized since the 1990's. At that time several training-related needs were identified. These included:

- Shortages of public health training materials;
- Limited pedagogical, supervisory and writing skills for most instructors in faculties outside Addis Ababa and
- Lack of basic teaching aids and equipment.

The Ethiopia Public Health Training Program (EPHTI) was designed as a result of conversations between US President Jimmy Carter and the current Prime Minister of Ethiopia and was designed to address three primary objectives:

1. The development of teaching materials to support public health training curricula;
2. The strengthening of instructors through training in pedagogical, supervisory and writing skills, and
3. Enhancement of the teaching-learning environment.

USAID, working in partnership with the Ministries of Education and Health, invested $7.1 million in the EPHTI-I project between September 2000 and November 2005 and subsequently funded a second phase of the Ethiopian Public Health Training Initiative (now known as EPHTI-II for a period of three years. EPHTI-II is a three-year direct cooperative agreement (signed in September 2005) between USAID and the Carter Center. The agreement is funded for $7.5 million dollars.

While the overall EPHTI program is designed to strengthen and accelerate pre-service training of four cadres of health professionals, Health Officers, Nurses, Medical Laboratory Technologists and Environmental Laboratory Technologists in universities, hospitals, and health centers to ultimately expand quality health care services, the main focus of EPHTI-II is on the training of 5,000 health officers over a five-year period in approximately twenty selected hospitals throughout Ethiopia in collaboration with the Federal Ministry of Health, Regional Health Bureaus (RHBs), the Ministry of Education, affiliated universities and the selected training hospitals and health centers.

This evaluation focused on the Accelerated Health Officers Training Program (AHOTP) and did not address the training support provided to the other three cadres. However, as the members of the evaluation team were reminded on several occasions, any consideration of EPHTI-II must take into account the overall activities and context of EPHTI.

The Ethiopian Federal Ministry of Health (FMOH) attaches critical importance to the Health Officer cadre because, along with Health Extension Workers, they constitute one of the essential vehicles for achieving the targets of the Third Health Sector Strategic Plan (HSDP-III) as well as Ethiopia's Millenium Development Goals (MDG's). [1]

The Accelerated Health Officers Training Program (AHOTP) was launched in December 2005 at four of the five participating universities (Jimma, Haramaya, Hawassa and Mekelle). Gondar University started four months later. In addition to the five universities, 21 hospitals located in seven Regions of Ethiopia were selected as training sites. The target number of students to be trained under EPHTI-II includes (a) 3,000 "post-basic" students who are all trained nurses and (b) 2,000 "generic" students who are undertaking basic training. According to the Carter Center, as of May 2008 the student population comprised 2917 post-basic students and 1519 generic students. Also, over 300 instructors, who are mainly from the hospitals that are participating in the Accelerated Training of Health Officers, have been trained in either training methodologies (158) or HIV/AIDS core competencies (156). Further training of 100 instructors in training methodologies is scheduled to take place in 2008. Additionally, the training curriculum and training materials, as well as needed supplies and equipment, have been distributed to all participating universities and hospitals and 20 Toyota Land Cruisers have been purchased and distributed to the hospitals that are participating in AHOTP.

As stated by USAID/Ethiopia in the scope of work for this final evaluation, the main uses of the evaluation results will be for for "designing a planned extension of EPHTI-II as well as the re-design of future programs for pre-service training for other key primary health care cadres throughout the country".

It should be noted at the outset of this report that, although this was a "final evaluation" of EPHTI-II, the first class of student Health Officers trained under EPHTI-II has not yet graduated. It was therefore not possible for the evaluators to assess the outcomes and impact from the EPHTI-II and, as a result, this report embodies more of the characteristics of a mid-project evaluation report than a final evaluation.

METHODOLOGY

Guiding principles adopted by members of the evaluation team during this participatory evaluation included:

1. As far as possible, all project stakeholders are to be involved in the evaluation

[1]Ethiopia Federal Ministry of Health, Planning and Programming Department. , September 2005 (EFY 1997). Health Sector Strategic Plan (HSDP-III) 2005/6 – 2009/10.

process.

2. Findings are to be evidence-based and triangulated (i.e. each of the major findings are to be based on at least three independent information sources).
3. Results from quantitative exploration are to be used to inform the design of qualitative exploration – and vice versa.
4. Unnecessary use of acronyms is to be avoided.

Key steps in the evaluation process were:

1. *Review of available documentation*: Since the team was faced with a "deluge" of documents prior to the visit, an initial task was to "sift through" the documents and determine which were most important. This process was repeated at several points throughout the visit. The documents reviewed are listed in Appendix Two.
2. *Introductory meetings with key stakeholders:* In addition to (a) the introductory briefing (by telephone) from the Project Director and Assistant Director at the Carter Center in Atlanta and (b) an introductory meeting and briefing from the Director and senior staff at the project offices in Addis, the members of the evaluation team also attended the Quarterly Meeting of the AHOTP Management Committee (held in Addis) where they had the opportunity to brief the Committee members on the evaluation and to seek their support in implementing the evaluation.
3. *Testing of initial assumptions:* The chart in Appendix Five illustrates how a critical part of the decision-making process that the evaluation team used to determine the most important directions in which the evaluation should proceed. The "scorings" assigned for (a) importance, (b) urgency and (c) feasibility helped the team to focus their efforts for the remainder of the visit. Scores for "feasibility" could not be assigned for many of the questions until it was known whether the evaluators' initial assumptions were borne out.
4. *Refinement of the evaluation design*: After the initial document review and its initial briefings from USAID and project leadership, the evaluation team raised several concerns with staff at USAID/Ethiopia. These concerns, which were about the lack of a project logic model and the lack of a student database, are discussed in more detail under the Monitoring and Evaluation section of the findings. Based upon guidance provided to the team during these initial discussions with USAID/Ethiopia, as well as the results of the preliminary document review and initial meetings at the Carter Center in Addis, the approach proposed by the team, and then agreed upon by USAID/Ethiopia, was to undertake (a) a more in-depth evaluation, including site visits, for Jimma, Mekelle and Haramaya Universities and (b) a basic evaluation which would involve surveying students, instructors and coordinators in all regions and holding key informant interviews that could shed light upon project implementation at all sites.
5. *Development and/or refinement of evaluation instruments*: The evaluation

instruments developed by the team included guides for focus group discussions with students and instructors and survey instruments for (a) students and (b) coordinators and instructors. Thanks to the efforts made by several of the coordinators, large numbers of student surveys (more than 500) were completed and sent to the evaluators.

6. *Site visits:* Team members made site-visits to selected communities, health centers and hospitals (used as training sites for Health Officer students) in Tigray, Oromiya, Dire Dawa and Harar Regions. Places visited included:

    - Jimma University;
    - Jimma Zonal Health Office;
    - St. Luke's Hospital, Woliso;
    - Woliso Health Center;
    - Mekelle University;
    - Mekelle Hospital;
    - Adigrat Hospital;
    - Adigrat Health Center;
    - Haramaya University;
    - Dilchora Referral Hospital;
    - Dire Dawa Urban Health Planning;
    - Hiwot Fana Hospital, Harar and
    - Haramaya Health Center, Harar.

    Several visits were also made to the Carter Center offices in Addis by the Team Leader and Dr. Fekade specifically to learn more about project management, project documentation, training materials and monitoring and evaluation.

7. *Data Analysis*: Results of the document review, the focus group discussions and the key informant interviews were reviewed and compared with the preliminary results from the survey and observations made during the site visits. Key themes that emerged from the data were identified and these are presented as the findings of this report.

8. *Assessment of whether the recommendations made at the end of EPHTI-I have been implemented*: This was done to respond to a specific request in the Scope of Work.

9. *Development of preliminary draft of findings and draft of recommendations*: The team developed a preliminary draft of its findings, and discussed these extensively not only with USAID but also at the final debriefing at the Ministry of Health.

10. *Final consultations with key project stakeholders:* A final meeting of stakeholders

was convened on the next-to-last day of the evaluation. Also, upon their return to the USA, Mr. Milroy and Ms. Lee also consulted by phone with the EPHTI-II Director and Deputy Director regarding the draft recommendations.

11. *Finalization of recommendations and preparation and submission to USAID of the first draft of the report.*
12. *Finalization of the report:* This was done after review of suggestions from USAID staff.

FINDINGS

Monitoring and Evaluation

Key findings in the area of monitoring and evaluation were:

- There is no "logic model" that describes EPHTI-II in terms of projected inputs, activities, outputs, outcomes and impact. The "project document" appended to the Project Agreement is a "program description" and it does not include any logic model.[2] In the absence of a clear and consistently applied logic model, it was simply not possible for the evaluators to definitively answer many of the questions posed in their Scope of Work. It might (or might not?) have been possible for the evaluation team to assist with the retrospective construction of a logic model for the EPHTI-II project. However, USAID/Ethiopia advised that this was beyond the scope of the assignment.
- There is no project-level database that contains information about participants. It was not feasible for the evaluators to compile such a database by obtaining the required information separately from each participating University. The EPHTI-II Project Director advised the evaluators that compilation of such a database might require going through a (possibly time-consuming) approval process within the Ministry of Education.
- The project's monitoring and evaluation "matrix" (attached to the evaluators' Scope of Work) does not include any qualitative indicators or tools and therefore does not open the way for assessments of quality. This is also a serious deficiency with which the evaluators had to contend.
- While there are several tables in the contractor's reports giving numbers of students (and some listing numbers of instructors) there is no centralized database that contains reliable, complete and up-to-date information about the numbers and types of (a) students and (b) instructors. There is not yet any system by which universities and hospitals can directly enter data about students – for either reporting or evaluation purposes. The training numbers given to the team by the

[2] USAID/Ethiopia: Health, AIDS, Population and Nutrition Office (2005). Program Description for Ethiopian Public Health Training Initiative, Phase II.

Carter Center in Addis are therefore not supported by any specific information about each student. Information about students or instructors is not available without reference to the participating Universities.

- Some of the numbers in the tables (Appendix Six) are different from the numbers included in the original version of the report given to the evaluation team (in hard copy) by the EPHTI-II office in Addis in May 2008. This is because of calculation errors in the original version and it is indicative that the contractor currently lacks a reliable system for documenting participants and instructors.
- There seem to be differing interpretations among the various stakeholders of the training "targets" for EPHTI-II - particularly regarding how generic students, who were not trained with EPHTI-II funds, should figure into the calculations. This also made it difficult for the evaluation team to accurately assess numbers trained under EPHTI-II - and it will therefore also make it difficult for the funders to eventually assess the cost-effectiveness of the training.

Project Management

Key findings in the area of project management were:

- The evaluators noted that, based on the numbers provided by the Carter Center in Addis recruitment and sponsoring of student Health Officers has been very successful. The evaluators met many students at the three universities that they visited. However, full verification of student numbers (by matching names from project records with actual students) was not possible because of the lack of a student database.
- The evaluation team observed great commitment, resilience and boundless determination among the coordinators, particularly the university-based coordinators, to make the training a success – sometimes under the most challenging of circumstances.
- The project has continued to take advantage of the initial partnership building that took place under EPHTI-I. The development of Terms of Reference and Memoranda of Understanding between critical stakeholders (with widely varying mandates and organizational structures) have been key management tools and have helped the project overcome some of the initial management challenges that are inherent in any project that involves multiple stakeholders from organizations with widely-differing mandates and organizational cultures.
- Although the End-of-Project evaluation for EPHTI-I[3] had identified some deficiencies in the project, and recommended actions that needed to be taken, the evaluation team for the EPHTI-II evaluation did not find evidence that all these deficiencies have been acted upon by project management prior to this external

[3] USAID/Ethiopia (2005). Report on End of Project Evaluation of the Carter Center's Ethiopia Public Health Training Initiative, USAID. Cooperative Agreement # 663-A-00-00-00358-00

evaluation of EPHTI-II. As a result, some of the lessons learned from EPHTI-I have not been carried forward into EPHTI-II.

- Students stated that the mechanisms for resolving student complaints and concerns are not working. Also, they feel very strongly that student input is not valued and that procedures for the resolution of student complaints are not consistently applied. One stated *"We have put the problem many times to have a smaller number of students…but with no result"*.

- Some of the project reports that could potentially provide data for us in decision-making, such as the reports made by Universities at the project's Quarterly Management meetings, do not follow consistent formats and so comparisons (for example, comparisons between regions, or between hospitals) are difficult to make.

- Monitoring visits to the universities and training sites by management staff of the Carter Center in Addis have been very infrequent and, while they have led to solutions being found for many problems, they have not focused on monitoring the quality of the training that is being provided. For example, the report of the monitoring visit made in February-March 2008 to all universities (except Gondar) described needed management actions that would have been made earlier had more frequent monitoring visits been undertaken.

- Key informants stated that they felt that too much time and energy had been wasted in fruitless arguments about the duration of training. They feel that these discussions were *"a distraction and created confusion"* and stated that they feel that the time would have been better spent in trying to address other pressing problems – such as the lack of instructors. One key informant described this debate about the duration of Health Officer training as *"a critical management crisis"*.
- According to the Carter Center in Addis, there has been attrition of about 200 students. However, because of the lack of a student database, it was not possible for management, or the evaluators, to easily obtain information about patterns in the causes of this attrition.

- When discussing the EPHTI-II project, some of the critical stakeholders, including senior project leadership in Atlanta, described the project purely in "program terms" whereas others describe it as a "project" This is consistent with the lack of clarity in the project documents (described above under monitoring and evaluation) and it has led to some serious differences between universities in their interpretations of project requirements. For example the Coordinating team at Jimma University) describe EPHTI-II as a "project" with rigidly applied accountability standards and "segregated" accounts that document use(s) of project funds - and so their reporting, financial systems and other management systems were quite specific to the requirements of the EPHTI-II project. Other Coordinators offered a more "programmatic" interpretation of the project requirements

- Although, as is common throughout Ethiopia, extensive use is made of cell-

phones, there is inadequate use of technology for fulfilling basic management tasks - such as written communication with stakeholders between the Quarterly Management Meetings. Part of this problem stems from the fact that some stakeholders do not have regular and/or reliable access to the Internet.

Knowledge and Skills of Students and Instructors

Key findings in this area were:

- According to the results of the surveys, students, instructors and coordinators are in agreement that, by the time of graduation, most students are likely to have acquired needed skills and competencies for those areas listed in the Health Officer profile for which they are expected to receive training prior to graduation.
- Students, instructors and coordinators are all eager to provide information and ideas about how the training and the management of the project can be improved so that this can happen.
- Based on their observations of some instructors, the members of the evaluation team noted that some of the instructors are extremely skilled – and some students are already demonstrating evidence that they have learned these skills and that the training, particularly the training of post-basic students, is building on the nursing skills that students already had prior to starting their training as Health Officers. For example, one team member observed a student attending to a 25 year-old female with abdominal cramping and diarrhea for four days. The student completed a focused history taking, listened carefully to the patient's needs, conducted a skilful abdominal exam, stool exam and follow up for anemia – and the student noted that *"I am now taking history differently with this training"*.

Training Design and Delivery

Key findings in the areas of training design and delivery were:

- The enthusiasm of both students and instructors is extremely high and students are generally committed to providing health services to individuals, families and communities that are sometimes struggling to survive in the most challenging of circumstances. The following statement is typical – *"I will serve my people with my upgraded knowledge. I know mapping and community diagnosis and can identify community problems"*. Another stated: *"I am happy and interested… this is a good chance and I gained more knowledge and skills. I want to do some years in the community and then more in obstetrics and gynecology"*. And another said *"I have a vision for public health. I have many years of experience and I really appreciate the chance for me. If I succeed I want to continue studying public health"*.
- Instructors stated in focus groups and key informant interviews that they hold the Health Officer students in high regard. They believe that, almost without

exception, students are committed to working to improve the health of the communities that they will be serving after graduation. For example, one university coordinator said, *"With regard to eagerness they are very high and they have clear objectives with regard to their higher education"*. Students likewise spoke of their instructors with high regard.

- Students were generally appreciative that the training designs emphasize for exposure that they get to different kinds of cases. Many appreciated the fact that they are working in busy hospitals because of the rich experience that this gives them.
- The Health Officer training curriculum (Appendix Four), which incorporates the Health Officer "profile" and training standards, is a key document. However, the evaluation team did not see or hear evidence that the Health Officer training curriculum, and particularly the Health Officer profile, was used to focus the training of health officers on the tasks for which they will be responsible after graduation. This resulted in a lack of focus and coherence in the training and clinical supervision of health officers.
- During the focus group discussions neither students nor instructors made unsolicited reference to either the training curriculum or the Health Officer profile – except when mentioned by the evaluation team. This suggests that they may not have been very aware of the curriculum or the profile. Also, students and instructors only rarely mentioned the training materials produced by the Carter Center.
- The design of many of the training materials, especially the modules, is not consistent with current instructional design principles which place high importance on the existence of a clear and coherent "thread" between the profile of the Health Officers, their desired on-the-job performance and the required knowledge, skills and competencies needed to perform in the desired manner.
- Students and instructors alike consistently complained about the lack of instructors and the resultant high ratios of students to instructors. Students feel that this has severely compromised the quality of their training. The problem of student overcrowding at many of the sites where students do their clinical practicals is sometimes compounded by the presence at the same sites of students from private-sector nursing schools. This problem of overcrowding has been compounded in Tigray Region because of the closure of Michew Hospital as a training site – due to the lack of clinical instructors. This necessitated the moving of students from Michew to the other two training sites in the region (Adigrat and Axum).
- Many stakeholders, including students, instructors and coordinators stated during focus groups and key informant interviews that they feel very strongly that the training is not being adequately monitored by The Carter Center in Addis and, in particular, that the clinical component is not being adequately supervised and monitored. For example, students and instructors both expressed much concern about the lack of visits to students by their preceptors during their community-

based practicals and students and instructors alike complained about the difficulties in getting transport to the sites where students are doing their practicals – and some complained that, when they use their own money, they run the risk of either not being reimbursed or of waiting a long time for reimbursement. A student at one Health Center said *"we use public transportation at our own expense as far as we can go and then we wait on the side of the road"*.

- There is great concern among key informants at all levels that the number of instructors, particularly clinical instructors, is grossly inadequate and that, as a result, some of the training is being severely compromised. One Site Coordinator said *"We cannot say no to the Health Bureau when they tell us that they are sending more students because (they say) a lot of resources have been invested in improving our training facility"*.
- During the focus group discussions students, including those studying at other universities, expressed concern and anger that two Universities (Haramaya and Gondar) have unilaterally changed the duration of training.
- Key informants mentioned that the relationship between Health Officers and Health Extension Workers has not yet been clearly determined and that this may eventually have an adverse impact upon the eventual role of Health Officers when they assume their positions in the health system after graduation. The same sentiment was expressed regarding the relationship between Health Officers and Nurse Supervisors – who have responsibility for supervising the Health Extension Workers.
- Participants and their instructors often referred to the differences between post-basic students and the generic students and consistently emphasized that the training curriculum, training approaches and training methodologies for the two groups should not necessarily be the same. One instructor described these differences in very positive terms when he said *"The post-basic health officers know the pain of society and the generic students are our explorers"*. Some concerns were expressed about some of the Post-Basic students who *used to be "high in the system and have an inflated opinion of their abilities"*. It was stated that such students sometimes do not readily accept negative assessment results.
- Students stated that they felt that there was not enough time allocated in the curriculum for physical exam and history taking. Students also stated that only rarely do they have access to the Internet and their libraries are often crowded. There is a general appreciation among both instructors and students of the value of "problem-based" training and they requested more of this type of training.

Quality of Clinical Training

During the site visits, student skills were observed/assessed in obstetrical, gynecological, pediatric, internal medicine, surgery, and outpatient departments. Also examined were health center learning and support facilities such as instructors, classrooms, learning

supplies, equipment (computers, LCD's etc.) laboratory resources, transport availability and availability of textbooks and journals. Key findings in the area of clinical training were:

- The Health Officers training curriculum states that *"The quality and standard of the program will be ascertained through recruitment of qualified teaching staff, continuous assessment of students' performance using examinations and class tests, supervised practices in the training hospitals and health centers, availability of up-to-date text and reference books, laboratory equipment and reagents as well as consumables and non-consumables, feedback from graduates and employers and periodic evaluation of the program in general"*. The curriculum also states that *"education standards will be student-centered, problem solving, team approach and community based"* and that teaching methods will include *"lecture discussion, clinical and community practices, role play, tutorials/seminar and case study"*. The curriculum also states that a variety of types of assessments will be undertaken including tests and examinations, clinical practice assessments and community practice assessments. The evaluation team could find little evidence that this guidance about training standards is being consistently and systematically followed.

- The prevalent shortages of health workers, especially physicians in Ethiopia has adversely affected some of the EPHTI-II clinical training sites, including some in Regions where maternal mortality rates are highest [4] has led to (a) localized lack of availability of some specialist services (even some routine services) and (b) a localized lack of clinical instructors. These staffing shortages have sometimes led to severe imbalance in the instructor-student ratio for EPHTI-II practical training – especially at many of the sites where students are doing their clinical practice. It has also meant that some training sites cannot offer a full range of clinical experience to students. Project management noted that this was an extremely serious problem at Michew Hospital and, as a result, this hospital is no longer a Health Officer training site. Students who were scheduled to do their practicals at Michew have been transferred to Adigrat and Axum for their clinical experiences.

- The quality of service-delivery at hospitals visited by the team is extremely variable. For example, on a "subjective scale" of 0 through 10 (with 10 reflecting high quality of service-delivery and 1 being extremely low quality of service delivery) the two team members who visited St. Luke's Hospital and Hiwot Fana assessed St. Luke's a score of 8.5 and Hiwot Fana a score of 1. Although the impact of poor quality on quality of training is very hard to assess, the quality of clinical training at some of the sites where students are doing their practicals is likely to have been compromised.

[4] Ethiopia Federal Ministry of Health, Planning and Programming Department. Health Information Processing and Documentation Team. (November 2007). Health and Health Related Indicators, *1999 EC (2006/07 GC).*

- The best hospitals, such as St. Luke's, draw many patients from outside their planned "catchment areas" - this leads to shortages of supplies and equipment at these better facilities and is likely to adversely affect the quality of training provided at these sites.

Training Materials, Supplies and Equipment

Key findings in this area were:

- Extensive use is being made of the computers and LCD's provided by the project – and these are much appreciated by students and instructors alike. However, the team did hear stories about computers that had not reached their intended destination and were not available for use by students and instructors, they were unable to verify that this has been the case.
- Many of the training materials, especially the modules, produced by the Carter Center[5] are not being extensively used for the training of Health Officers. The exception to this is the "Lesson Notes" which were stated by many instructors to be widely used.
- The training modules that were reviewed by the evaluation team rarely contained any detailed statements regarding the specific performance expectations of Health Officers in relation to each of the tasks listed in the profile.
- Up-to-date references were not in evidence in the sample of training materials reviewed by the evaluators. In addition, the training materials have not been designed in a manner that makes them easy to update.
- Students and instructors are not in general agreement regarding availability of facilities, supplies and equipment. In their responses to the surveys students reported more limited access to supplies, technology, equipment and training materials than did the instructors.

Capacity Building at Universities, Hospitals and Health Centers

Key findings in this area were:

- Major efforts have been made by EPHTI-II to strengthen the capacity of Hospitals and Universities by providing equipment, reference books, lecture notes, office materials, classroom and library furniture, teaching materials, diagnostic equipment, infection prevention supplies and other consumable medical supplies. However, the results of these efforts do not seem to be consistent across all training sites.
- All stakeholders, including students, voiced appreciation to the evaluation team

[5] Carter Center. Ethiopia Public Health Training Initiative. Published Modules and Lecture Notes for Health Science Students.

on numerous occasions regarding the efforts that have been made. Instructors stated in focus groups that these efforts have had a "ripple effect" and that the training of other cadres of health workers, including physicians, has improved as a result of the project.

- Despite these efforts, the evaluation team was informed by students that ongoing shortages of medical supplies adversely affected their clinical experience. This is reflective of (a) a larger problem in Ethiopia and (b) the overcrowding of students at some of the clinical training sites..
- Key informants were either silent or non-committal about the value of technical inputs, including training, from the Carter Center in Atlanta. For example, one key informant, referring to those who have provided technical assistance, simply stated, *"They are happy with what they do"*. Some felt that there is expertise in educational approaches and training methodologies within the participating universities and that this expertise should be drawn upon.
- Several key informants mentioned the burdens that the training of Health Officer students places on non-medical hospital staff. For example, the administrator at one hospital stated that meeting the needs of students and caring for the library took up a lot of her time – and *"it distracts me from meeting the needs of our patients"*.

Impact and Sustainability

Although it is still much too early to assess the impact and sustainability of the project, key findings in these areas are:

- There seems to be universal agreement among all stakeholders, at all levels (including the highest levels of the Ethiopian Federal Ministry of Health)[6], that continuation of the training, professional development and support of Health Officers is relevant, important, urgent and worthwhile. Many stakeholders mentioned the important contributions that they can make to HSDP-III targets.
- Students told the evaluation team that they are likely to remain in Ethiopia and most already have clear career goals. Many are committed to returning to serve in rural communities while others wish to specialize in Ob/Gyn or emergency surgery by undertaking the advanced training in these areas that is being planned.
- Many key informants spoke about the contributions that student Health Officers are already making in the communities where they are doing their practicals. For example one instructor said, *"They are doing magnificent things in the community"*. Another said*: "They are filling the gap as from the beginning of their training"* and *"The presence of Health Officer students has improved service and teaching in the hospital"*. Those who are doing their practicals seem to be highly regarded and are already viewed by community members as being

[6] Members of the evaluation team debriefed with the Minister of Health and the State Minister of Health at the end of their visit.

"doctors".

- Many of the key informants, particularly university instructors, talked about benefits from the project that extend to the training of other cadres of health worker, including physicians. The instructors who participated in the focus groups also mentioned this.
- Although explicit actions have not yet been taken on the issue of longer-term sustainability, the Project Director and Carter Center's Resident Technical Adviser suggest that this is an issue that is constantly on their minds, and on the minds of some of the other key stakeholders.
- Although they did not see direct evidence that this is the case, several stakeholders informed the evaluators that Health Officers constitute a crucial element in the future plans of some international organizations. There may therefore exist possibilities for alternative sources of funding to support future training of graduate Health Officers.
- The communication and facilitation skills of the university-based coordinators are critical to the longer-term success of the Health Officer training. Unfortunately few of them have the means to communicate effectively and efficiently with each other – and to share experiences and seek each other's guidance as to how they have addressed challenges in the project. As a result, except perhaps for brief moments during the Quarterly Management Meetings, there is little sense that a dynamic "community of coordinator practice", in which coordinators learn from each other, is emerging.

Follow-Up to Evaluation of EPHTI-I

The team's Scope of Work requested that the EPHTI-II final evaluation team determine the extent to which the findings and recommendations of USAID's 2005 Final Evaluation of EPHTI-I have been addressed. This was not entirely possible because, while the focus of the 2008 final evaluation was mainly on the Accelerated Health Officer Training Program, the 2005 final evaluation was of the entire EPHTI. Also, both USAID/Ethiopia and the Carter Center in Atlanta stated that they were not aware of any correspondence between the Carter Center and USAID after the 2005 final evaluation. Findings of the 2008 evaluation in relation to each of the recommendations and findings of the 2005 evaluation cited in the team's Scope of Work are:

- The 2005 evaluation determined that there was *"no formal mechanism in place to determine competency, skills and performance of graduates, and how their new skills were utilized after graduation"*. The 2008 evaluation team found that this still seems to be the case as regards the AHOTP. This finding has been described in more detail elsewhere in the report.
- The 2005 evaluation determined that EPHTI has "*not produced planned case studies, audio-visual aids and manuals for classrooms or training health centers"*. The 2008 team found that substantial production of training materials,

particularly lecture notes, and has taken place during EPHTI-II. However, due to USAID's prohibition on access to financial information, the evaluators were not able to assess the source of funding for the publications completed and printed during EPHTI-II.

- The 2005 evaluation determined that there were *"no data available that distinguish between beneficiaries of the training-of-trainers program and beneficiaries of "cascade" training and that a clearly articulated definition of these categories was needed to allow more accurate measures of outcomes"*. As already explained under the Monitoring and Evaluation section of the findings, the lack of a student database indicates that this is still the case.
- The 2005 evaluation determined that *"interviews with health science colleges in Alemaya and Debub Universities indicate that the turnover rate for junior faculty trained by EPHTI was high….. and that a retention plan for junior faculty members was needed at these universities"*. Although the 2008 team was did not travel to, or communicate specifically about the issues in Alemaya and Debub, there continue to be very serious problems of turnover of instructors in many of the universities and clinical settings where students undertake their practicals. These are described elsewhere in this report.
- The 2005 evaluation determined that EPHTI was *"to explore potential sources of funding from other organizations to sustain EPHTI activities beyond USAID funding. With the exception of vehicles donated by Packard Foundation, no significant additional resources had been mobilized as envisioned by EPHTI-I"*. The evaluators did not encounter evidence of funding from other sources. However, due to the request from UNSAID/Ethiopia that the evaluation team not delve into the finances, they did not explore this issue in any degree of depth.
- The 2005 evaluation determined *that "the plan to sustain procurement of textbooks and other materials beyond the life of the cooperative agreement had yet to be developed by the universities"*. The evaluators found no evidence that such plan has been developed *per se*, although the team was informed that partnerships with other international organizations (e.g. AMREF and Tulane University) have been initiated by the Carter Center.

Discussion Of Findings

Although the evaluation findings have been presented according to the main headings in the Scope of Work of the evaluation team, several of the issues identified have had over-arching implications for all aspects of the EPHTI-II project. In the opinion of the evaluators the most important of these issues, as well as those requiring the most urgent attention, are:

- The longstanding need for the design and implementation of a realistic and workable monitoring and evaluation system that includes attention to quality indicators and that takes into account current technological constraints. Ironically, the very late start with the design of a workable monitoring and evaluation

framework provides the management of EPHTI-II with an opportunity to develop an evaluation design that is not only informed by the EPHTI experience thus far but also takes into account (a) the Ethiopian geographical and socio-cultural context, (b) the needs of all stakeholders (including USAID and future funders) and (c) makes uses of cell-phone voice and visual technologies that are already widely used across Ethiopia. Such a system should therefore have a strong audio-visual component.

- The need for immediate agreement about project "negotiables" so that training is consistent between Universities and their partner hospitals while taking into account contextual differences and challenges. Given the deeply embedded nature of some aspects of the dispute, such agreement may not come about without external facilitation.
- The need for more use of modern technology to (a) enhance communications and "connectivity" between stakeholder institutions and (b) to provide alternative training modalities (such as use of CD-ROMs, computerized models or simple computer-based diagnostic algorithms), particularly in those settings that are overcrowded with students.
- The need for more coherence between the Health Officer profiles, training curriculum and training materials and for more attention to be given to the different learning needs between "generic" and post-basic" students.
- The need for more emphasis on providing high-quality clinical training in high-quality service-delivery environments so that the services provided by Health Officers once they are posted to the health system after graduation, are, in turn, of the highest quality.

CONCLUSION

The main conclusion of the evaluators is that, despite some critical flaws in design, implementation and evaluation, the AHOTP component of EPHTI-II is highly appreciated and valued by all the stakeholders and it continues to have a high degree of potential to significantly contribute to the goals of Ethiopia's Third Health Sector Development Plan, the Millenium Development Goals and USAID's Foreign Assistance Framework - and thereby to positively impact the health of communities in rural Ethiopia. However, further investment in the training and professional development of this cadre can only be fully justified if:

1. The project's monitoring and evaluation framework is redesigned and made fully operational.
2. Issues of project management are addressed.
3. More use is made of electronically based technologies.
4. More attention is given to the quality of training.
5. Arrangements are made to address the likely deficits in the skills and

competencies of graduating Health Officers.

The recommendations that follow are designed to respond to these concerns.

RECOMMENDATIONS

The EPHTI-II final evaluation team recommends that:

1. In order to address critical deficiencies in the area of **monitoring and evaluation**, the following steps should be taken:

    - Clear "logic models" showing project inputs, outputs, desired outcomes and anticipated impact should be developed. These logic models should be acceptable to all stakeholders and should "underpin" (a) all project activities for the remainder of EPHTI-II and (b) any follow-on project. The logic model for EPHTI-II, which should be developed immediately, should also help to clarify which, if any, of the project "inputs" are negotiable.

    - The evaluation framework for the AHOTP component of EPHTI-II should immediately be redesigned not only to be consistent with the project logic model but also to include indicators of quality. The system should also allow for simple reporting using the cell-phone technologies that are already widely available in Ethiopia. The framework should therefore make accommodation for reporting through texting or for verification by means of photographic reports. Audio-visual data have the potential to be particularly useful when assessing the outcomes and impacts from EPHTI-II and/or for making presentations to potential funders. They can even contribute to data-bases of promising practices.

    - Student and instructor data-bases should immediately be designed and made fully operational (if necessary with external technical assistance that takes into account local constraints, local regulations, concerns regarding confidentiality and linkages with other data-bases);

    - Participating universities and hospitals should immediately provide, and routinely update, information about students and instructors participating in the AHOTP;

    - Analysis of the information contained in the database should be undertaken – and reports that follow consistent formats should be submitted to the AHOTP quarterly management meetings and to the funder(s).

    - The results of the analyses should be broadly disseminated among stakeholders and should be used at all levels to guide decision-making at all levels.

- The systems for documenting and addressing student concerns and complaints should be strengthened and made fully operational;
- Efforts should immediately be made to survey students and instructors /coordinators from those sites from where responses have not yet been obtained and a full analysis of the quantitative and qualitative data contained in the completed surveys should be undertaken;
- The results of these analyses should be conveyed to all project stakeholders at the November 2008 Quarterly Management Meeting;
- Existing promising practices of students, instructors, coordinators and management should be entered into a database that can inform project management of promising developments. Those that are eventually defined as "best practices" should be fully described so that they can be widely emulated.

2. In order to build upon the strong spirit of partnership that has already been engendered in EPHTI-II while addressing the **management** issues identified by the evaluation team and promoting the efficient and effective implementation of the evaluators' recommendations:
   - Decisions as to which project inputs are "negotiable" and which are "non-negotiable" should be made as a matter of urgency – if possible at the next Quarterly Meeting of the Management Team. If necessary, the services of an experienced external facilitator should be used at this meeting. High priority should be given to closely monitoring the implementation of the decisions made at this meeting.
   - Many of the responsibilities, and much of the authority, relating to the key activities needed to rapidly implement EPHTI-II changes should immediately receive additional level of effort and should be Addis-based – perhaps on an *interim* basis.
   - The skill areas of staff in the contractor's office in Addis should be enhanced as soon as possible through the recruitment of a senior Addis-based professional with strong skills in:
     a) Development of monitoring and evaluation systems;
     b) Curriculum development;
     c) Performance assessment;
     d) Management and supportive supervision;
     e) Training design and implementation;
     f) Community health and
     g) Resource development

     The person recruited for this suggested new position should also have

already demonstrated an in-depth understanding of the Ethiopian context and a sound knowledge of (a) the various components of a comprehensive approach to Human Resources for Health (HRH) and (b) USAID project procedures and requirements.

3. In order to address the lack of **suitable technologies** to (a) "connect" the stakeholder institutions, (b) support training and (c) support the management and supervision of training, the phased introduction of new technologies should be incorporated into any follow-on project and initial steps in this regard should be taken during the remaining months of EPHTI-II. Immediate steps should include:

    - The conduct of a detailed audit of the inventory of existing technology and equipment.
    - The initiation and development of partnerships with private-sector organizations likely to have an interest in promoting the use of new technologies.
    - Broadened accessibility to the Internet to include, as a first step, the university-based coordinators – and eventually instructors, students and graduate Health Officers.
    - The establishment of electronically based "communities of practice" among the coordinators – and eventually among the instructors, students and graduate health officers.

4. In order to address the **training design** issues identified by the evaluation team, immediate steps should include:

    - A review of the Health Officer profile and job description should be undertaken as soon as possible as a precursor to a detailed review of the curriculum. Participants in such a review should include the Ministry of Health, the Ministry of Education, the Regional Health Bureaus and the participating universities as well as student Health Officers (both Post-Basic and Generic), graduating Health Officers, experienced Health Officers and representatives of professional associations. If necessary, the services of an experienced facilitator should also be used during this review. The proposed review should give careful attention to:

        a) Determination of the most desirable balance between public health and medical care in the Health Officer profile.

        b) Determination of the roles of Health Officers in relation to the roles of Health Extension Workers and their Nurse Supervisors.

        c) Determination and specification of the aspects of the curriculum that can be adapted to suit local contexts and constraints.

        d) Development of revised Health Officer job descriptions that are

consistent with any revisions in the Health Officer profile.

e) Detailed statements of the specific skills and competencies required to effectively and efficiently implement the tasks listed in the profile and job description.

- Existing training materials, including the modules and lecture notes, should be reviewed in detail by an instructional design specialist to address the need for clear "threads" between the Health Officer "profile", the desired Health Officer skills and competencies, the content of the materials and the actual uses made of the materials by Health Officers and their instructors. The same specialist should also be charged with the responsibility of assessing the desirability, feasibility and cost of adapting the existing materials to be responsive to (a) the expected performance of graduate Health Officers – especially in relation to (a) the focus areas of HSDP-III and (b) collaboration with other cadres - especially Health Extension Workers and their supervisors and (b)technology-based learning modes (e.g. internet-based training).

5. In order to be able to assure that needed standards of service-delivery at sites where students undertake their **clinical practice** are met, an *ad hoc* sub-committee of the AHOTP Management Committee should immediately be established and charged with the responsibility for determining specific and feasible arrangements for:

    - Bi-annual assessment of each AHOTP training site using a standardized assessment tool that is based on the quality standards listed in the Health Officer training curriculum;
    - Monitoring of all clinical assessments of students;
    - Analysis of the results of all clinical assessments (using the information contained in the student and instructor data-bases);
    - Establishment of systems for (a) accreditation of clinical training sites that meet required standards, (b) provision of technical assistance and support to sites where standards are not met and (c) identification and remedying of training deficits.

6. In order to address the strong likelihood that some graduate Health Officers will lack **critical skills and competencies** upon graduation, provision should be made for a gradual transition towards an individualized professional development system that is learner-based and learner-initiated. Such a system will include:

    - Individualized assessments of (a) skills/competencies and (b) job performance of students to take place periodically during training and 9-12 months after graduation. Supervisors of the graduate Health Officers should be involved in these assessments, which will be both qualitative

and quantitative.

- Establishment of a database containing the results of these assessments. Results from the analysis of this information should be used to guide program decision-making.
- After analysis of the results, design of a comprehensive program of training and continuing education that takes into account the strengths of the different universities and any immediate need for training in life-saving skills.
- Registration (and re-registration) of Health Officers that is contingent upon their participation in Continuing Education. A system should be designed for the awarding of Continuing Education Units (CEU's). The Ethiopian Public Health Association should participate in the design of this system.

7. In order to provide much-needed support and assure the required **quality of service-delivery** by all Health Officers (especially current students after graduation), the stakeholders in EPHTI should work together to advocate for:
    - Provision for technical support and supportive supervision of graduating Health Officers;
    - Continued availability of supplies and equipment at sites where graduating health officers are posted;
    - Provision for further training and continuing education;
    - Provision for consistent availability of relevant learning materials, including models and simulations that can reduce the current overloading of the small number of clinical instructors;
    - Documentation of promising practices;
    - A comprehensive and workable monitoring and evaluation system;
    - Communities of Health Officer practice that, once the appropriate technologies are in place, will eventually become on-line communities of practice.

APPENDIX ONE:

Map of Ethiopia

(showing Universities Participating in the Accelerated Health Officers Training Project)

Note: This map can be found on the Carter Center's web site and is included here with permission of the Carter Center. http://www.cartercenter.org/health/ephti/ephtimap.aspx)

APPENDIX TWO – List of References and Documents Reviewed

Note: Documents provided to the evaluators by USAID prior to the evaluation are marked with an asterisk (*).

1. Carter Center. "Annual Report: EPHTI-II: 2005 – 2006".*
2. Carter Center. "Annual Report: EPHTI-II: 2006 – 2007".*
3. Carter Center. "Annual Workplan for EPHTI-II: 2006 – 2007".*
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5. Carter Center. Ethiopia Public Health Training Initiative. Published Modules and Lecture Notes for Health Science Students.
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10. Carter Center. Guide for Interviewing Staff and Students.*
11. Carter Center: EPHTI Summary Briefer (undated).*
12. Carter Center. Job Description for Director
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14. Carter Center: Job Descriptions of Addis-based staff
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21. Carter Center. EPHTI Network News (Summer 2007).*

22. Carter Center. Final Report on EHPTI (Phase One).*

23. Carter Center. Needs Assessment: Universities and Hospitals.*

24. Carter Center. PEPFAR Semi-Annual Reports.*

25. Carter Center. Report on Assessment of Training Institutions in Amhara.*

26. Carter Center: Report on Visit to Gondar Region.*

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28. Ethiopia Federal Ministry of Health, Planning and Programming Department. (September 2005) (EFY 1997). Health Sector Strategic Plan (HSDP-III) 2005/6 – 2009/10.

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35. USAID/Ethiopia: Health, AIDS, Population and Nutrition Office: Scope of Work for End of Project Evaluation of the Carter Center. (Ethiopian Public Health Training Initiative: Phase Two).*

36. USAID/Ethiopia: Semi-Annual Review (April 2006)*

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APPENDIX THREE – List of Persons Contacted

1. USAID, The Carter Center, Ministry of Health, Ministry of Education

Name	Current Position	Institution/Region
Tedro Adhanom Ghebreyesus	Federal Minister of Health	Government of Ethiopia
Debede Worku	State Minister of Health	Federal Ministry of Health
Solomon Mogus	Advisor	Ministry of Education
Shewaminale Yohannes	Expert	Ministry of Health
Hailu Yeneneh	Resident Technical Advisor, EPHTI	The Carter Center, Addis Ababa
Assefa Bulcha	Program Manager, EPHTI	The Carter Center, Addis Ababa
Meseret Tsegaw	Executive Office Manager, Addis Ababa	The Carter Center, Addis Ababa
Aklilu Mulugeta	Sp/Manager, Addis Ababa	The Carter Center, Addis Ababa
Nigussie Bekele	Monitoring and Evaluation, Addis Ababa	The Carter Center, Addis Ababa
Joyce Murray (by phone)	Director, EPHTI	The Carter Center, Atlanta
Shelly Brownsberger (by phone)	Assistant Director, EPHTI	The Carter Center, Atlanta
Glen Anders	Director	USAID/Ethiopia
Cynthia Shartzer	Contracting Officer	USAID/Ethiopia
Meri Sinnitt	Chief, Health, Health, AIDS, Population and Nutrition, USAID/Ethiopia	USAID/Ethiopia
Samuel Clark	Program Evaluation Coordinator	USAID/Ethiopia,
Anita Gibson	CTO (EPHTI-II) and Health Team Leader	USAID/Ethiopia
Mesrak Nadew	Public Health Specialist	USAID/Ethiopia
Deneke Kassahun	Specialist, Demography	USAID/Ethiopia
Metiku Woldegiorgis	Field Operations Manager	Pathfinder International, Addis Ababa
Michael Dejene	Public Health Consultant	Health Communication and Development Associates, Addis Ababa

2. Universities, Coordinators, Instructors, and Key Informants

Name	Current Position	Institution/Region
Dr. Manyazewal Dessie	AHOTP Coordinator	Dilchora Hospital, Haramaya
Dr. Gezahegr Woguso	Pediatrician	Haramaya University, Dire Dawa
Dr. Dague Belay	General Medical Physician	Haramaya University, Dire Dawa
Dr. Abel Melkamn	Medical Director	Haramaya University, Dire Dawa
Dr. Fikru Tafese	Coordinator (AHOTP)	Jimma University
Afressie Molla, ,	AHOTP Program Coordinator	Hawassa University
Bassamo Deka	Coordinator (AHOTP)	Awassa University
Asressie Rolla	Coordinator (AHOTP)	Awassa University
Yemane Ashebir	AHOTP Program Coordinator	Mekelle University
Dr. Ashenafi Kefene	AHOTP Coordinator/ Surgeon	St. Luke Hospital/ Jimma University

Name	Current Position	Institution/Region
Dr. Biguayehm Mengistu	AHOTP Instructor /General Practitioner	St. Luke Hospital/ Jimma University
Dr. Wolde Gabriel	AHOTP Instructor /Surgeon	St. Luke Hospital/ Jimma University
Dr. Solomon Melaku	AHOTP Instructor/ Opthalmologist	St. Luke Hospital/ Jimma University
Dr. Rino Bregani	AHOTP Instructor/ Internist	St. Luke Hospital/ Jimma University
Dr. Tadele Melese	AHOTP Instructor/ Gynecologist	St. Luke Hospital/ Jimma University
Dr. Tadele Hailu	AHOTP Instructor/ Surgeon/ Pathology	Mekelle University, Adigrat
Diresibachew Haile	AHOTP Instructor/ Physiology	Mekelle University, Adigrat
Desta G/Selassie	AHOTP Instructor/ Anatomy	Mekelle University, Adigrat
Mussie Ghezu	AHOTP Instructor/ Pharmacology	Mekelle University, Adigrat
Danisi Nigusse	AHOTP Instructor/ Public Health	Mekelle University, Adigrat
Meuretu Besayru	AHOTP Instructor/ Public Health	Mekelle University, Adigrat
Eyoel Berham	AHOTP Instructor/ Public Health	Mekelle University, Adigrat
Fisalia Haile	AHOTP Instructor/ Public Health	Mekelle University, Adigrat
Livingsione Ohoo	AHOTP Instructor/ Biochemistry	Mekelle University, Adigrat
Dr. Musa Husen	AHOTP Instructor/ Public Health	Haramaya University, Harar
Dr. Dawit Bacha	Medical Faculty	Haramaya University, Harar
Lemessa Oljira	AHOTP Instructor/ Public Health	Haramaya University, Harar
Dr. Shimelis Nigusie	AHOTP Coordinator/ Public Health	Haramaya University, Harar
Nejal Hassen	AHOTP Instructor/ Public Health	Haramaya University, Harar
Dr. Jalel Hundesa	AHOTP Instructor/ Public Health	Haramaya University, Harar
Ato Melake Damena	Dean, Faculty of Health Sciences	Haramaya University, Harar
Dr. Dawit Amare	AHOTP Coordinator	Mekelle University, Adigrat
Dr. Abdul Kader	Dean, College of Health Sciences	Mekelle University, Adigrat
Tesfay Weley	Counselor of Health	Southern Center, Tigray
Dr. Dereje Worku	AHOTP Coordinator/ Medical Director	Hiwot Fana Hospital, Haramaya University
Berhane Megeresssa Ereso	Senior Training Coordinator	Jimma University
Gebrez Geabeher	Community Leader	Tigray Village

3. Health Officer Students

Name	Current Position	Institution/Region
Meeaku Ceadissa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Semere Sileshi	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Mideksa Daton	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Bedilu Nigussie	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tigist Degere	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Esayas Bayisa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Shewaye Fituma	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Berhanu Belay	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Bati Anota	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University

Name	Current Position	Institution/Region
Muiugeta Mirassa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Solomon Tejineh	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Firehiwat Tamiru	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Abera Gutema	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Zinash Seyoum	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tasfaye Abrhame	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Shiferaw Chirkena	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Dejene Markos	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Ashebiv Gelar	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Addis Hordofa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Gelana Lulu	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Mahammed Abdi	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Beyene Beyecha	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Getahun Wangart	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Berhanu Mekonnen	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Fatuma Mohammed	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tailkeea Endpias	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Haile Legesse	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Desalegn Abebe	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tigist Olivia	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Fekede Olika	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Chala Chimdi	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Temesgen Burka	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tekle Biru	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Meseret Fita	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Burtukon Abate	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Helen Tammu	Post-Basic Student Health	St. Luke Hospital/ Jimma University

Name	Current Position	Institution/Region
	Officer	
Yetnebersh Reta	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tadeleu Abdissa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Solomon Tefera	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Lufa Devessa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Muiupeta Repassa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Meseret Abera	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Assarechmon Kain	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Buisa Lecaisa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Zaude Ayana	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Megassire Abebe	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Ayansa Mosisa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Gamachis Shibasmi	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Teressa Toiera	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Girma Shiferau	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tegust Teuesgru	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Asfaw Girma	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Bahiru Toledai	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Desta Tadesse	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University
Chalachew Alem	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University
Bontu Berhanu	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University
Mohammed Zekeria	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University
Cherinet Taye	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University
Dawit Yitbarek	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University
Dinkakehu Gebre	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University
Dessie Kassa	Generic Student Health Officer	Haramaya Health Center/ Haramaya University
Tesfahun Taye	Post-Basic Student Health Officer	Haramaya Health Center/ Haramaya University

Name	Current Position	Institution/Region
Elefie Assfaw	Generic Student Health Officer	Haramaya Health Center/ Haramaya University
Hiwde Yighaw	Generic Student Health Officer	Haramaya Health Center/ Haramaya University
Zebene Tefera	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Tesfaye Taoesse	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Birhanu Kumsa	Post-Basic Student Health Officer	St. Luke Hospital/ Jimma University
Molla Tefere	Generic Student Health Officer	Mekelle University, Adigrat
Deng Uchimi	Post-Basic Student Health Officer	Mekelle University, Gambella
Tesfahun Dejene	Post-Basic Student Health Officer	Mekelle University, Adigrat
Adula Thwol	Post-Basic Student Health Officer	Mekelle University, Adigrat
Henock Glmedhin	Generic Student Health Officer	Mekelle University, Adigrat
Eden Demewot	Post-Basic Student Health Officer	Mekelle University, Adigrat
Shishay Amare	Generic Student Health Officer	Mekelle University, Adigrat
Wittica Nove	Post-Basic Student Health Officer	Mekelle University, Adigrat
Mustafe Regosso	Post-Basic Student Health Officer	Mekelle University, Adigrat
Workesh Tewaia	Post-Basic Student Health Officer	Mekelle University, Adigrat
Byray H-Slassie	Post-Basic Student Health Officer	Mekelle University, Adigrat
Frewein Yilma	Post-Basic Student Health Officer	Mekelle University, Adigrat

APPENDIX FOUR – Health Officer Training Curriculum

(DRAFT)

CURRICULUM FOR GENERIC AND POST BASIC ACCELERATED HEALTH OFFICER TRAINING PROGRAM

By

FMOE/FMOH

July 2005

Addis Ababa, Ethiopia

Organizations involved in the Revision of the Curriculum

- University of Gondar
- Jimma University
- Alemaya University
- Debub University
- Mekelle University
- Federal Ministry of Health
- The Carter Center (EPHTI)

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BACKGROUND

Heath officer training program was started in Ethiopia in 1954 in the then Gondar Public Health College and Training Center. Currently health officer training is being conducted in five universities, namely Gondar, Jimma, Alemaya, Debub and Mekelle Universities. According to the report of the Ministry of Health, there were a total of 683 health officers in 2003/2004. Even though the number of training institutions is increased, still the demand for health officers is not met. Hence, this accelerated health officer training is planned to scale up the number of health officer graduates using also around 20 hospitals owned by the Ministry of Health.

This new curriculum is designed in line with the new educational policy, reducing the fresh-man course from health officer training program except the one's that are essential and not covered on the preparatory phase of their trainings in high schools. The curriculum has incorporated problem based and task oriented teaching to make the graduating health officer a full-fledged health worker responsible for promotive, preventive and curative services including emergency operation at a health center level.

Training the health officers using this curriculum will greatly assist implementation of HSDP and the MDGs thereby bringing rapid improvement in the prevailing health situation of the country.

AIMS

The aim of the training is to produce competent heath officers who undertake promotive, preventive, curative and rehabilitative services compatible to the needs of the population. The training will equip the health officer with appropriate knowledge skill and attitude so that she or he is able to effectively and efficiently solve the health and health-related problems of individuals, families and communities. Moreover, the training will enable him/her to undertake common emergency surgical and obstetric operations, and manage the health center team in a spirit of team work and community–based approach.

GRADUATE PROFILE

1. Assess community health needs
2. Plan, organize, direct, coordinate, and evaluate programs at various levels particularly at woreda health office and primary health care unit.
3. Collect, process and analyze health and health - related data from health institutions, communities and other sources and utilize; and disseminate the information to the community and other concerned bodies.
4. Conduct or coordinate continuing education, and on-job training to the staff of the primary health care unit including the health service extension workers.
5. Provide comprehensive outpatient and inpatient service.
6. Implement primary health care activities like promotion of reproductive health services, prevention and control of major communicable diseases
7. Organize a team to prevent and control disaster and emergency situations
8. Perform minor operative procedures
9. Perform common emergency surgical and obstetric operations such as appendectomy, caesarian section etc

10. Refer difficult cases to the next higher level and do follow up upon their return to insure continuity of care
11. Mobilize individuals, families and communities for health action
12. Promote and be engaged in inter-sectoral activities.
13. Undertake essential and operational health research.
14. Document and report all health in his/her area of assignment.

SELECTION AND ADMISSION CRITERIA

A. Generic

Candidates must:

- Meet the set criteria of the higher education to join the higher learning institutions
- Be physically and mentally fit
- Be committed to serve the rural community
- Priority will be given for females

B. Post basic

- Diploma from recognized school of nursing or college
- Minimum of 4 years services (less years of service can be considered depending on the number of candidates in the respective regions)
- Maximum age for both sexes - 45 years
- Be physically and mentally fit
- Be committed to serve the rural community
- Be physically and mentally fit
- Priority will be given for females
- Sponsorship by the respective regions
- ESLCE results fulfilling the requirements of joining higher education and with a "C" grade and above in General Science, Biology, Chemistry, English and Mathematics

- Able to pass the entrance exam prepared by the universities
  -Written exam (Aptitude, English, Public Health, Medical-Surgical/Clinical) - 90%
  -Interview - 10%

DURATION OF THE PROGRAM

Both generic and post-basic students follow three years of theoretical, practical, and internship programs.

GRADUATION REQUIREMENT

Successful completion of 130 credit hours for generic and 125 credit hours for post basic with a minimum cumulative grade point average (CGPA) of 2.00. No grade of "F" is accepted for graduation and there should no be D grade in major clinical and public health courses as well as internship.

DEGREE NOMENCLATURE

Up on successful completion of the program the degree of Bachelor of Science in Public health (የባችለር ዲግሪ በሕብረተሰብ ጤና አጠባበቅ ሳይንስ) will be awarded.

QUALITY ASSURANCE

The quality and standard of the program will be assured through:

- Recruitment of qualified staff
- Examination and continuous assessment
- Periodical acquisition of up-to-date references, Laboratory equipment and reagents, etc
- Supervised practices in the training hospitals and health centers
- Feed back from employers and the graduates
- Periodic evaluation of the curriculum and the program in general

EDUCATION STRATEGIES

- Student Centred

- Problem solving
- Team Approach
- Community Based

TEACHING METHODS

- Lecture/Discussion
- Demonstration
- Community practice
- Role play
- Tutorials/Seminars
- Clinical practice
- Case study

ASSESSMENT

✓ Theory
- Formative (Written / oral tests)
- Summative (final written / oral examination)

✓ Clinical practice assessment
- Progressive assessment of rounds, bedsides, case-reports, etc
- Seminars and tutorials
- Checklists of procedures
- Written, oral and practical examinations

✓ Community practice assessments
- Student attitude
- Student presentation
- Supervisors checklist
- Log-book
- Report writing
- Written/oral exam

✓ Final qualifying external examination

COURSE DISTRIBUTION

YEAR	SEMESTER	GENERIC		POST BASIC	
		COURSE	CREDIT HOURS	COURSE	CREDIT HOURS
1	I	Introduction to public health	1	Sophomore English	3
		Sophomore English	3	Anatomy I	3
		Anatomy I	3	Physiology I	3
		Physiology I	3	Biochemistry	3
		Biochemistry	3	Introduction to Sociology & Anthropology	2
		Introduction to Sociology & Anthropology	2	Civics & Ethical Education	2
		Psychology	2	Biostatstics	3
		Civics & Ethical Education	2	Health Education	2
		Introduction to Computer Applications	1		
	Semester total		20		21

YEAR	SEMESTER	GENERIC		POST BASIC	
		COURSE	CREDIT HOURS	COURSE	CREDIT HOURS
1	II	Anatomy II	3	Anatomy II	3
		Physiology II	2	Physiology II	2
		Microbiology	3	Microbiology	3
		Parasitology	2	Parasitology	2
		Pathology	4	Pathology	4
		Pharmacology	3	Pharmacology	3
		Health Education	2	Introduction to Computer Applications	1
		Teaching Methodology	1	Teaching Methodology	1
				Nutrition	2
	Semester total		20		21

YEAR	SEMESTER	GENERIC		POST BASIC	
		COURSE	CREDIT HOURS	COURSE	CREDIT HOURS
1	III	Epidemiology	3	Epidemiology	3
		Biostatstics	3	Environmental Health & Ecology	3
		Environmental Health & Ecology	3	Disaster Prevention & Preparedness	1
		Disaster Prevention & Preparedness	1	Reproductive Health	1
		Communicable Disease control	2	Communicable Disease Control	2
		Health Service Management	3	Health Service Management	3
		Nutrition	2	Population & Development	1
		Population and Development	1	Health Ethics & Legal Medicine	1
		Health Ethics & Legal Medicine	1	Research Methodology	1
		Research Methodology	1	Clinical Laboratory Methods	2
				Introduction to Health Economics	1
	Semester total		20		19
	Year total		60		61

YEAR	SEMESTER	GENERIC		POST BASIC	
		COURSE	CREDIT HOURS	COURSE	CREDIT HOURS
2	I	Physical diagnosis	2 (2 weeks in block)	Physical diagnosis	2 (2 weeks in block)
		Clinical laboratory methods	2	Internal Medicine	7
		Introduction to nursing art	1	Surgery	7
		Internal Medicine	7		
		Surgery	7		
		Semester total	19		16
	II	Essential Operative Skills	1 (1 week in block)	Essential Operative Skills	1 (1 week in block)
		Health Economics	1	Obstetrics & Gynecology	7
		Reproductive Health	2	Pediatrics	7
		Obstetrics & Gynecology	7		
		Pediatrics	7		
		Semester total	18		15

YEAR	SEMESTER	GENERIC		POST BASIC	
		COURSE	CREDIT HOURS	COURSE	CREDIT HOURS
2	Summer (6 weeks block)	Mental health	2 (2 weeks in block)	Mental health	2 (2 weeks in block)
		Ophthalmology	2 (2 weeks in block)	Ophthalmology	2 (2 weeks in block)
		Oral health	1 (1 week in block)	Oral health	1 (1 week in block)
		Dermatology	1 (1 week in block)	Dermatology	1 (1 week in block)
		Summer total	**6**		**6**
		Year total	**43**		**37**

YEAR	SEMESTER	GENERIC		POST BASIC	
		COURSE	CREDIT HOURS	COURSE	CREDIT HOURS
3	Internship	Community Health Practice	6 (12 weeks)	Community Health Practice	6 (12 weeks)
		Research	3	Research	3
		Gyn./Obs	6 (12 weeks)	Gyn./Obs	6 (12 weeks)
		Surgery	6 (12 weeks)	Surgery	6 (12 weeks)
		Internal Medicine	3 (6 weeks)	Internal Medicine	3 (6 weeks)
		Pediatrics and Child Health	3 (6 weeks)	Pediatrics and Child Health	3 (6 weeks)
		Year total	**27**		**27**
	Total credits for the three years	**130**		**125**	

INTERNSHIP ROTATION

Disciplines	Weeks				
	1-12	13-24	25-36	37-48	Remark
Internal medicine and Pediatrics*	II	III	IV	I	
Public Health	III	II	I	IV	
Gynecology and Obstetrics	IV	I	II	III	
Surgery	I	IV	III	II	

*** Intern Health Officers will be further divided in to two groups and undergo internal rotation at the end of six weeks.**

INTRODUCTION TO PUBLIC HEALTH

Credit Hours: 1

Learning Objectives

At the end of the course, students will be able to:

1. Define health and public health and identify the determinant factors of health and ill – health.
2. Explain the concept of health as viewed by lay people and health professionals.
3. Describe the health services delivery system in Ethiopia,

Course content

1. Concept of health
   - Lay concept
   - Professional concept
   - Definition of Health
   - Determinants of health
2. Definition of public health
3. Culture and health
4. Traditional beliefs and health
5. Family health and traditional health care
6. Personal hygiene
7. Health and development
8. Primary health care and health for all.
   - Definition of PHC
   - Components of PHC
   - Principles/prerequisites of PHC
9. Health services of Ethiopia
   - History of development of health services
   - Organization of health services and health system

10. Health services coverage and distribution
11. Traditional health system
12. Community based health services
13. Team approach in health services

SOPHOMORE ENGLISH

Credit hours: 3

ANATOMY

Credit hours: 6 (Anatomy I: 3, Anatomy II: 3)

Learning objectives

The course is intended to give health officer students a working knowledge of primarily gross Anatomy, emphasizing the major systems that will be important in health center activities including surgical and Gyn/Obs. emergencies.

It should convey a lasting mental picture of human anatomy by the use of charts, models, isolated natural organs and dissected cadavers.

ANATOMY I

Credit Hours: 3

Course content

Part I

- Goals of studying, subdivision and history of anatomy
- Anatomical terms of position, planes and movement

Part II

General and introductory courses

a) Osteology – classification and character of bones
   - Development and growth of bones
   - Blood and nerve supply of bones
   - Forensic and anthropology of bones
   - Cartilages

b) Joints – Classification of joints in general
   - Synovial joint and their movement
   - Intra – articular structures

c) Muscles – classification of joints in general

- Structure and organization of muscles
- Innervations of muscles in general
- Associated structures with muscles.

d) Circulation

- Structure of the circulatory system
- Types of blood vessels
- Types of blood circulation
- Lymphatic system

e) Neurology

- Structure of nerves
- Types of nerves
- CNS and meninges + cerebrospinal fluid
- Structure of spinal cord
- Autonomic nervous system in general
- Cranial nerves

Part III

1. Upper limb
   1.1. Skeletal parts of the shoulder girdle arm, forearm and hand
   1.2. Joints and ligaments
   1.3. Axilla
   1.4. Muscles in general – arm, forearm, hand
   1.5. Blood and nerve supply including lymphatic system
   1.6. Applied anatomy: - fractures, arterial pulses and nerve injuries, which lead to ERB's and klumpkes paresis.
2. Lower limb
   2.1. *Skeletal parts* – (hipbone, femur, tibia fibula, patella, tarsal bones, metatarsal and phalanges) hip girdle, thigh, leg and foot.
   2.2. Joints and ligaments
   2.3. Muscles of the hip girdle, thigh leg and foot

2.4. Blood and nerve supply including lymphatic system

2.5. Applied anatomy – arches of foot, arterial pulses, places for ligatures of leg arteries

2.6. Nerve injuries and their results such as flexed hip joint, extended hip joint, claw foot, pes calcaneus etc.

3. Thoracic cavity

3.1. Short revision on bones, joints, blood vessels nerves and muscles of the thoracic wall

3.2. Mediastinum - most important (anterior and posterior) - contents

3.3. Size, shape and position of heart related to age and posture

3.4. Interior of the heart including pericardial cavity

3.5. Blood vessels: - coronary arteries and veins (large and small).

3.6. Lungs

- Fissures, lobes and segments including pleura
- Trachea, bronchi and relation with oesophagus
- Roots of the lungs (hilum)
- Diaphragm – its origin, insertion, function, and orifices
- Nerves of the lungs and pleura

4. Abdominal cavity

4.1. Short review on bones, muscles, blood vessels, nerve and lymphatic of the abdominal wall. Also the position of the aponeurosis in the formation of rectus sheath.

4.2. Diaphragm in relation to the abdominal cavity.

4.3. Peritoneum and peritoneal recesses, intra – abdominal pressure intra - abdominal hernias. Special formation of the peritoneum: - lesser and greater omentum, hepato duodenal, hepato gastric ligaments. Omental bursa, epiploic foramen, mesenteries.

5. Organs

5.1. *Stomach*: - parts, form (curvatures), condition of stomach depending on age, sex, style of life. Gastric canals (rugae), cardia, pylorus. Relationship of stomach to heart. Blood vessels and lymphatics.

5.2. *Duodenum*: - shape and its parts (four) – superior descending, horizontal and ascending. Common orifices of bile duct and pancreatic duct. Duodenal recesses, doudeno – jejunal flexure.

5.3. *In jejunum and ileum*: - comparison in length, structure. Circular folds and blood supply.

5.4. *Colon (large intestine) main signs*: - taeniae coli, sacculation appendices epiploicae.

Vermiform appendix, its mesentery (mes appendix) and its possible sites.

Caecum: - ileocecal valve

Ascending colon: - right-colic flexure

Transverse colon: - point after CANNON BOEHM.

Descending colon: - left-colic flexure

Sigmoid colon: - its mesocolon.

5.5. *Rectum*: - parts, relation to peritoneum, its blood supply, Hemorrhoids.

5.6. *Liver*:- parts, findings by percussion, relation to peritoneum including anterior ligament (falciform ligament, coronary ligament, right and left triangular ligament) and posterior ligament (lesseromentum).

Hilum of liver:- hepatic artery proper, portal vein, right and left hepatic ducts. Hepatic vein to the inferior vena cava bare area of the liver. Segmentation of liver by the arteries.

5.7. *Gallbladder, biliary ducts*:- relation to the liver right and left hepatic ducts cystic duct and bile choledochus duct. Connection of bile duct with pancreatic duct.

5.8. *Pancreas*:- parts, relation to duodenum, vertebral column omental bursa and stomach. Posterior to and pancreatico duodenal arteries origin of superior mesenteric artery is behind the body of pancreas main pancreatic duct and its opening to duodenum.

5.9. *Spleen*:- part of the lymphoreticular system. Situated in the left hypochondrium between the dorsal parts of 9^{th} and 11^{th} ribs along the 10^{th} rib.

5.10. Blood, lymphatic vessels and innervation's

- *Arties*: - abdominal aorta, colic trunk, superior and inferior mesenteric arteries.
- *Veins*: - inferior vena cava-its roots, relation to liver.
- *Portal vein*: - roots, shunts (caput medusae, haemorrhoids, varices of oesophagus.)
- *Lymphatic vessels and lymph nodes*:- cisterna chyli and its roots coming from the legs, the pelvis and the abdomen. Thoracic duct. Lymphatic connections between the organs as possible pathways of metastasis.
- *Nerves*: - vagus, greater and lesser splanchnic nerves, colic ganglion, superior and inferior mesenteric ganglion.

5.11. Pelvic cavity

ANATOMY II

Credit hours: 3

Course Content

Part I

1. Retroperitonium (Retroperitoneal cavity)

1.1 Review of bones, ligaments and muscles of hip region, abdominal aorta and iliac vessels.

1.2 *Kidneys*: - position, colour and consistency.

Parts: - medulla, cortex, pelvis and capsule

1.2.1 Anterior relation of the kidney with neighbouring organ (For right and left kidneys)

1.2.2 Blood vessels of the kidneys: - Right and left renal arteries and renal veins.

1.2.2.1 Support of kidney: - renal fascia or adipose capsule of kidney.

1.2.2.2.Fixation of kidney on the right place

- Intra – abdominal pressure
- Blood pressure of renal arteries
- Connective tissue structures (renal fascia and adipose capsule).

1.3. Ureters: - length and position

1.3.1.Relations of the ureter in the abdomen

Anterior and posterior aspects

1.3.2.Relation in the pelvis

- Male
- Female

1.3.3.constriction areas of the ureter

- Pelvic – ureteric junction

- At brim of pelvis
- At entrance to bladder

1.4. Suprarenal glands (right and left)

1.4.1. Location and size

1.4.2. Relations vessels

1.5. Urinary bladder

1.5.1. Position in infant and adult, in male and female

1.5.2. Parts of the bladder in male and female

1.5.3. Interior of the urinary bladder

1.5.4 Innervations: - sympathetic and parasympathetic

1.6 Vas deferens, seminal vesicles and prostate

1.6.1 Vas deference – continuation of the duct of epididymis part of the spermatic cord passing through the inguinal canal.

1.6.2. Seminal vesicles: - two sacculate pouches.

1.6.3 Prostate: - position, shape and its relation to the first part of the urethra

1.7 Anal Canal

1.7.1 Its origin, length and its internal and external.

1.7.2 Its relation to levator and muscle

1.7.3 Anal columns and sinuses with valves.

1.7.4 Blood supply

1.8 Pelvic diaphragm

1.8.1 Muscles: - levator and coccygeus muscles (origin and insertion with the function and innervation).

1.8.2 Pelvic fascia – covers the muscles of the nerves wall

1.9 Female genital organ

1.9.1 Ovary: - location, colour and size.

1.9.2 Uterine tube and uterus

Part: Vesical (anterior)

Intestinal (posterior funds)

Lateral Margins (Also cervix is included)

1.10 Vagina – location and relation with structures around.

1.11 Blood vessels and lymphatics of female genital organ.

1.12 Female perineum; muscles, external gentialia which includes the mons pubis, labia majors and minora, clitoris, vestibuli hymen, glands

1.13 Male perineum; - superficial fascia and muscles

1.14 Scrotum and testis.

1.14.1 Scrotum.

1.14.2 Testis

1.14.3 Penis and urethra with its parts

1.15 Female Urethra.

Part II

1. Head and Neck

1.1. Bones of skull.

Paired: - parietal, temporal

Unpaired: - frontal, occipital, sphenoid, ethmoid.

1.1.1. Frontal region (supra – orbital mouth and nose or foramen)

1.1.2. Facial region (dorsum of nose)

1.1.3. Side of skull: - Bones from behind forwards

Above: - occipital, parietal, frontal

Below: - occipital, temporal, sphenoid

1.1.4. Back of the skull

Above: - parietal bone

Below: - occipital

Mastoid temporal in each side

1.1.5. Top of skull

Frontal, parietal and occipital

Sutures: - coronal, sagittal, lambdoid

1.1.6. Lower surface of the base of the skull

2.1.3. Substances

- Grey matter: - columns or horns Substantial gelatinosa
- White matter:- columns(3) tracts medial (fascicules gracilis) post
- Lateral (fascicules cunectus) column

2.1.4. Vessels of the spinal cord

- Anterior and posterior spinal arteries (arise from vertebral artery)
- Lateral spinal arteries arise from deep cervical artery.
- Veins from spinal plexuses

2.1.5. Meninges of the spinal cord

- Lateral column – lateral corticospinal (voluntary motion)
  - Rubrospinal (muscle tone & synergy)
  - Olivospinal (reflex)
- Posterior column – Fascicules interfascicularis (common tract of SCHULTZE association and integration) situated between fascicules gracilis and cuneatus.

2.2. Brain

2.2.1. Cerebral hemispheres

- Main divisions of cerebrum: frontal, parietal, temporal lobes.
- Nerve fibbers (medullated)
- Transverse or commissural fibbers
- Projection fibbers (internal capsule)
- Association fibbers (connects the various portions of the same cerebral hemisphere.

2.2.2. Function of the cortex

2.2.3. Ventricular system and cerebrospinal fluid

- Lateral ventricles with interventricular foramen
- Third ventricle (its walls)
- Fourth ventricle
- Cerebrospinal fluid – specific gravity, contents

2.2.4. Arteries

- Internal carotid arteries
- Vertebral arteries
- Formation of circle of Willis

2.2.5. Venous circulation – Dural sinuses

2.2.6. Subarachnoid space

2.2.7. Blood – brain barrier

2.3. Sense organs

2.3.1. Olfactory apparatus

2.3.2. Periorbital visual apparatus

- Eyeballs and orbit
- Layers of eyeball

2.3.3. Auditory and vestibular apparatus

- External ear
- Tympanic cavity (middle ear)
- Internal ear

2.4. Ductless glands (Endocrine system)

2.4.1. Hypophysis cerebri (pituitary gland)

- Adenohypophysis – cells
- Neurohypophysis

Hormones: - Vasopressin, oxytocin

2.4.2. Pineal glands

2.4.3. Parathyroid

2.4.4. Suprarenal glands

PHYSIOLOGY

Credit Hours: 5 (Physiology I: 3, Physiology II: 2)

Learning Objectives: -

After studying this course, the learner should be able to:

1. Understand several levels of body organization, the "internal environment" and its importance as an integrator of body functions.
2. Comment on the importance and basic types of physiological control mechanisms
3. Describe the effects of chemical and nervous factors on the operation of several level of body organization and the value of each activity to the maintenance of homeostasis.
4. Appreciate the various mechanisms the body employs to protect itself against disease.
5. Relate the concept of pathophysiology to haemostasis.

PHYSIOLOGY I

Credit hour: 3

Course content

1. General principles of physiology
   1.1. Transport of substances across biological membranes
   1.2. Bio electric potentials
      - Resting potential
      - The action potential
      - Propagation of the action potential
2. Excitable tissues – Nerve and muscle

2.1. Chemical synaptic Transmission – effects of agonist and antagonist drugs

2.2. Electrical synaptic transmission

2.3. Interactions of synapses

2.4. The molecular Mechanism of muscle contraction

2.5. The regulation of muscle contraction

3. Autonomic Nervous system

3.1. Functions of the sympathetic and parasympathetic systems

4. Blood and the circulatory system

4.1. Functions of the blood

4.1.1. Basic concepts

4.1.2. Blood plasma, Erythrocytes, Leucocytes, thrombocytes

4.1.3. Homeostasis and coagulation

4.1.4. The role of the blood in defense

4.1.5. Human blood groups, blood transfusion

4.2. Design and functions of the circulation general consideration

4.3. Functions of the heart

4.3.1. General structural and functional aspects

4.3.2. Basic processes of excitation and excitation contraction coupling

4.3.3. The electrocardiogram

4.3.4. The cardiac pump and its regulation – pressure with in the heart, function of values, heart sounds, regulation of cardiac functions, work of the heart.

4.4. Functions of the vascular system

4.4.1. Functional organization of the vascular system

4.4.2. Pressures and flows in the circulation

4.4.3. The arteries and arterial pressure

4.4.4. Micro circulation and the veins

4.4.5. The lymphatic system

4.4.6. Regulation of regional (local) blood flow

4.4.7. Regulation of the overall circulation

4.4.8. Circulatory adjustments to physiological and pathological circumstances

4.4.9. Circulation through special organs and its control.

5. The respiratory system

5.1. Mechanics of breathing

5.2. Ventilation and alveolar gas pressures

5.3. Diffusion and gas transport in blood

5.4. Control of ventilation

5.4.1. Ventilatory responses to Hypoxia

5.4.2. Ventilatory response to CO_2

5.4.3. Role of ventilation in Acid – Base regulation

5.5. Alterations of ventilatory mechanics is disease

5.6. Resuscitation

5.6.1. Mouth to mouth

5.6.2. Mouth to nose

6. Water and electrolyte balance

6.1. Water balance

6.2. Electrolyte balance

6.3. Generalized disturbances of water and electrolyte balance

7. The function of the kidneys

7.1. Fundamentals of renal functions

7.2. Renal blood flow

7.3. Glomerular filtration

7.4. Tubular transport

7.5. Special tubular transport mechanisms

7.6. The adjustment of urine concentration

7.7. Endocrine function of the kidneys

Physiology II

Credit hour: 2

Course content

1. Digestion and excretion
    - 1.1. General bases of gastrointestinal function
        - 1.1.1 Regulatory mechanisms – nerves, hormones, local factors
    - 1.2. Motor activity – motility
    - 1.3. Secretion – salivary, gastric and pancreatic secretions
    - 1.4. Digestion and absorption

2. Endocrine physiology
    - 2.1 General aspects of endocrinology
    - 2.1. The posterior and anterior pituitary system
    - 2.2. The thyroid system
    - 2.3. The adrenal cortex system
    - 2.4. The pancreatic hormones
    - 2.5. Homeostasis of calcium and phosphate balance
    - 2.6. Hormones of the adrenal medulla
    - 2.7. Hormones and reproduction

3. Reproduction, pregnancy and aging
    - 3.1. Sexual functions
        - 3.1.1. Sexual differentiation
        - 3.1.2. Hormonal regulation of gonadal functions, female and male sexual functions
        - 3.1.3. Puberty and menopause, menustral cycle, contraceptive use
    - 3.2. Reproduction and pregnancy

3.2.1. Coitus

3.2.2. Pregnancy, Birth and lactation

3.3. Basic features of the Biological aging process

3.3.1. Age – related functional changes

4. Neurophysiology

4.1. Neuronal organization and functional localization

4.2. Reflexes and spinal mechanisms

4.3. Sensory system – sensory mechanisms in the peripheral nervous system

4.3.1. Pain perception and pathways

4.4. Motor systems

4.4.1. General aspects

4.4.2. Pyramidal and extra pyramidal systems

4.4.3. Motor lesions

4.5. Postural Mechanisms – the vestibular system, Supporting reactions

4.6. Special senses

BIOCHEMISTRY

Credit hours: 3

Learning objectives

At the end of the course the student is expected to:

- To know the chemical processes which enable the organism to generate and store energy from different food stuffs, and processes that enable to inter convert different biomolecules, and how all these processes are synchronized into a harmonious whole.
- To predict which metabolic process is affected during shortage of specific type of dietary supply.
- To understand which metabolic pathway and organ is dominantly affected by a certain disorder and hence be able to use specific laboratory test, identify and follow the progress of the disorder.
- To understand the molecular basis of certain types of diseases.
- To understand the biochemical basis of drug actions, effects of toxins.

Course content

1. Introduction
   - ➢ The scope of biochemistry
   - ➢ Significance to clinical medicine
2. The major chemical constituents of cells
   - 2.1. General chemical composition
     (Elementary composition of the human body)
   - 2.2. Water
     a. Chemical properties and structure
     b. As a media for biochemical reaction
3. Proteins
   - 3.1 amino acids
     - ➢ Classification and naming

- Structure
- As electrolytes

3.2. Classification of proteins

3.3. Conformation of proteins

3.4. Myoglobin and hemoglobin

a. Structure

b. Physiologic function – O_2 – binding curve

c. Reaction of hemoglobin with CO_2, H^+ (Bohr effect) 2,3-DPG

d. Clinical correlates

- Sickle hemoglobin
- Hemoglobin and co-poisoning

3.5. Enzymes

a. Definition

b. General mechanisms of action

c. Inhibition of enzyme activity

d. Regulating enzyme activity

e. PH, Temp. And enzyme activity

4. Carbohydrates

4.1. Monosacharides - types
- Structure

4.2. Polysaccharides

a. Homopolysaccharides

Characterizing starch and glycogen

b. Heteropolysaccharides

Mucopolysaccharide

5. Lipids

5.1. Classification

5.2. Fatty acids

- Saturate FA
- Unsaturated FA

5.3. Acylglycerols

5.4. Phosphoglycerides

- Phosphatidases
- Cardiolipin

5.5. Sphingolipids

5.6. Sterols (steroids)

5.7. Lipoproteins

6. Intermediary metabolism

6.1. Definition

6.2. Carbohydrate metabolism

a. Glycolysis and TCA cycle

b. Gluconeogenesis

c. Glycogenesis and glycogenolysis

d. Glucose haemostasis

- Normal values
- Supply of glucose to blood
- Removal of glucose from blood

e. Clinical correlates

- Glycogen storage disorders
- Fasting storage disorders
- Fasting hyperglycaemia
- Fasting hypoglycaemia

7. Lipid metabolism

7.1. Digestion and absorption

- Bile acids and fat digestion
- Fat soluble vitamins
- Transportation in circulation

7.2. Fatty acid oxidation and generation of energy

7.3. Deposition of fat (synthesis of triacyl glycerol)

7.4. Mobilization of fat (catabolism of triacyl glycerol)

7.5. Phospholipid metabolism

7.6. Lipid transport

- Lipoproteins (chylomicrons, VLDL, LDL, HDL)

7.7.Clinical correlates

- Ketosis (DKA, starvation)
- Steatorrhoea and malabsorption syndromes
- Fatty liver
- Disorders of plasma lipoprotein (hypercholeste-rolenuria and atherosclerosis)

8. Protein Metabolism

8.1. Digestion and absorption of amino acids

8.2. Essential and non-essential amino acids

8.3. Catabolism of amino acid nitrogen

a. Trasaminations

b. Oxidative deamination

c. Biosynthesis of urea

d. Clinical correlates

- Liver diseases and transaminases
- Liver diseases and hyper ammonia
- Kidney diseases and BUN

8.4. Catabolism of amino acid carbon skeleton

- An overview of glycogenic, ketogenic or both types of amino acids

8.5. Amino acids as a source of special peptide

a. creatine phosphate

- Creatinine
- Clinical correlate: kidney function and creatinine clearance

b. Glutathione

- Glutathione, and RBC function

- Glutathione G6 –P dehydrogenase and haemolytic anaemia

9. Integration of metabolism
   - 9.1. Metabolic profile of major organs
     - a. Liver
     - b. Muscle
     - c. Adipose tissue
     - d. Brain
   - 9.2. Hormonal regulators of fuel metabolism
     - Insulin
     - Glycogen
     - Catecholamine
   - 9.3. Metabolic adaptation to prolonged starvation
   - 9.4. Diabetes mellitus and disturbances in intermediary metabolism

10. Porphyrin and bile pigments
    - 10.1. A description on the synthesis of porphyrin and heme
    - 10.2. Catabolism of Heme and formation of bilirubin
    - 10.3. Transport, conjugation, excretion of bilirubin and bile pigments
    - 10.4. Clinical correlates
      - a. Porphyria e.g. PCT
      - b. Hyperbilirumbinemia and jaundice
        - Conjugated – obstructive jaundice
        - Unconjugated – liver disease and enzyme deficiencies
          - Hemolyzing disorders

11. Nucleotide
    - 11.1. Nomenclature
    - 11.2. Metabolism of purine and pyrimidine
    - 11.3. Clinical correlates

- Hyperuricemia and gout
- Orotic aciduria

12. Genetics

12.1. Structure of DNA, RNA, tRNA

12.2. Replication

12.3. Repair of DNA

12.4. Mutation

12.5. Transcription

12.6. Translation

12.7. Drugs affecting replication, transcription, and translation (antitumours, antibiotics)

13. Endocrinology

13.1. Definition

13.2. Classification of hormones

13.3. Posterior pituitary hormones

13.3.1. Oxytocin - Structure

- Function

13.3.2. ADH

- Structure
- Function
- Clinical correlates
  - Diabetes insipidus
  - Syndrome of inappropriate ADH secretion.

13.4. Anterior pituitary hormones

13.4.1. Growth hormone

- Structure
- Function
- Regulation of secretion and synthesis
- Clinical correlates
  - Dwarfism
  - Gigantism
  - Acromegaly

13.4.2. Prolactin

- Function and regulation

13.4.3. Gonadotropin (FSH, LH)

- Function and regulation of release
- Relations to human chorionic gonadotropin
- Clinical correlates: plyper LH and PCO syndrome

13.4.4. ACTH

13.5. Thyroid hormones

- Biosynthesis of thyroid hormones
- Iodine heamostasis
- Transportation of thyroid hormones
- Regulation of synthesis and release
- Clinical correlates – endemic goiter (euthyroid goiter)
  - Hypothyroidism
  - Hyperparathyroidism

13.6. Hormones that regulate Ca^{++} and PO_4^{-2} metabolism

13.6.1. Calcium homeostasis

13.6.1. PO_4^{-2} homeostasis

13.6.2. Parathyroid hormone

- Structure and production
- Regulation of synthesis, secretion, and degradation
- Role in mineral homeostasis
- Clinical correlates
  - Hypothyroidism and tetany
  - 1^0 and 2^0 Hyperparathyroidism

13.6.3. Calciferol ($+25(OH)_2 - D_3$)

- Biosynthesis and regulation
- General role in Ca^{++} and PO_4^{-2} homeostasis
- Mechanism of action
- Clinical disorders – Vitamin D deficiency and
  - Osteomalacia
  - Renal osteodystrophy

13.7. Pancreatic hormones

13.7.1 Glycogen

- Metabolic effect

13.7.2. Insulin

- Production and secretion
- Effects on glucose utilization and production
- Effects on lipid metabolism
- Effects on protein metabolism
- Effects on cell replication
- Clinical correlates
  - IDDM
  - NIDDM

13.8. Hormones of adrenal gland

13.8.1. Catecholamine

- Synthesis
- Metabolic effects
- Vascular and cardiac effects
- Clinical disorder: Pheochromocytoma

13.8.2. Hormones of adrenal cortex

a. Glucocorticoids – types

- Metabolic effects
- Effects on host defence mechanism
- Effects on cardiovascular system
- Clinical correlates:
- Addisson's disease
- Cushing's syndrome

b. Mineralocorticoides

- Renin – Angiotensin system
- Potassium & Na+ as regulators
- Aldosterone effects in the kidney
- Clinical disorders

- Primary aldosteronism and hypertension

13.9. Hormones of the reproductive system

13.9.1. Hormones of the ovaries

- General description of synthesis
- Secretion and transport
- Regulation and physiologic actions
- Maturation and physiologic actions
- Maturation and maintenance of female reproduction system
- Menstrual system
- Menopause
- Clinical correlates
  - Primary and secondary hypogonadism
  - Testicular feminization syndrome

14. Vitamins

14.1. Classification

- Water-soluble
- Fat-soluble

14.2. Vitamins as coenzyme

14.3. Vitamin A

- Source
- Physiologic function: in vision
  Epithelial differentiation
- Clinical correlates
- Vitamin A deficiency and blindness
- Vitamin A excess (in therapy)

14.4. Vitamin D

- Refer to hormones in metabolism of Ca^{++} & Po^{-2}_4
- Vi. D deficiency and malabsorption syndromes
- Vit. D excess (in therapeutics)

14.5. Vitamin E

- Source and daily requirement

- Function as antioxidant

14.6. Vitamin K

- Source and daily requirement
- Function in clotting system
- Clinical correlated
- Biliary tract obstruction and Vi. K deficiency

14.7. Vitamin B, (thiamine)

- Structure
- Dietary sources and daily requirement
- Important functions
- Clinical correlates
    - Beriberi
    - Alcoholism & thiamin deficiency (Wenicke korsakoff syndrome)

14.8. Niacin

- Dietary sources and daily requirement
- Physiologic functions
- Deficiency: pellagra

14.9. Folic acid and Vit.B_{12}

- Sources and daily requirements
- Physiologic function in metabolic of 1-c compounds
- Relation between V.B12and folic acid
- Clinical disorder: - Megaloblastic anaemia
    - Sub acute combined degeneration of the spinal cord (Vit.B_{12})

14.10. Vitamin C

- Source and daily requirement
- General mechanism of action
- Clinical correlates: scurvy

15. Minerals

15.1. Ca^{++} and PO_4^{-2} metabolism (refer to endocrinology section)

15.2. Iron

- Source and daily requirement
- Intestinal absorption of iron
- Iron transport and cellular uptake
- The iron compartments and their iron containing proteins
- Clinical correlates: - Iron deficiency anemia
  - Haemochromatosis

15.3. Iodine homeostasis

16. The blood

16.1. Composition of blood plasma

16.1.1. Plasma proteins

a. Serum albumin - Properties
- Functions

b. Globulins - Types
- Functions

Clinical correlates: -

- Hypoproteinemia - liver disease
  - Kidney disease
  - Protein loosing
  - Enteropathy
- Hypergamaglobulinemia

c. Enzymes of plasma

- Serum amylase
- Acid and alkaline phosphatase
- Amino transferase
- Amino transferase

d. Blood clotting proteins:

- Intrinsic and extrinsic pathways of coagulation
- Fibtinolysis
- Clinical disorders: Haemophilia, other bleeding diathesis)

17. Body fluids electrolytes, and Acid – base balance

17.1. Fluid compartments of body

a. Control of behaviour of extracellular fluid

b. Natural composition of urine

c. Abnormal constituents of urine

17.2. Composition of body fluids

a. Alterations in electrolyte and water metabolism

- Hypotonic expansion e.g. SIADH
- Hypotonic contraction e.g. dehydration
- Hypertonic expansion e.g. ingestion of sea water
- Hypertonic contraction e.g. diabetes insipid
- Hyper kalemia e.g. KCl intake
- Hypokalemia (e.g. after vomiting and after diuretic therapy)

b. Control of PH of body fluids

- Normal values
- The buffer system
- Regulators of blood PH
- Clinical correlates
- Metabolic acidosis e.g. diabetic ketoacidosis
- Metabolic alkalosis e.g. sever vomiting (Hyperemesis gravidarum)
- Respiratory alkalosis e.g. pneumonia, asthma
- Respiratory acidosis e.g. CORDC

18. Blood groups

18.1. Blood group antigens and antibodies

18.2. Blood group ABO system

18.3. Blood group Rh system

18.4. Clinical correlates

- Value in blood transfusion
- RH incompatibility (Erythroblastosis fetalis)
- ABO incompatibility

INTRODUCTION TO SOCIOLOGY AND ANTHROPOLOGY

Credit hours: 2

PART I: SOCIOLOGY

Learning objectives

The main objective of the course is to familiarize health officers with the fundamental elements of sociological perspective regarding human social life. As such, the course will briefly introduce the subject – matter of sociology, such as: view of A. comet, H Spencer, E . Durkheim, and M. Weber, pointing out the methods of sociological study, the relationship of sociology to other social science and humanities, the greater part of the course will touch on the definition of basic sociological concepts and on the explication of major theories and methods concerning social organizations, relationships, and processes. Afterwards, the health officers will be introduced to those sociological approaches in the analysis of society. Finally, as the health officers are expected to impart knowledge of community health, change attitude and practice of Ethiopia, in particular, the methods of social action will be discussed.

Course content

1. Introduction
   - 1.1. Subject – matter of sociology
     - 1.1.1. Views of August Comet
     - 1.1.2. Views of Herbert Spencer
     - 1.1.3. Views of Emils Durkheim
     - 1.1.4. Views of Max Weber
   - 1.2. Sociological Methodology
     - 1.1.1. The scientific method
     - 1.1.2. Techniques of studying human society
   - 1.3. Sociological and related disciplines

1.3.1. Economic
1.3.2. History
1.3.3. Political science
1.3.4. Psychology
1.3.5. Anthropology

2. Social organizations and relationship
   2.1. Social groups
   2.2. Social institution, community and society
   2.3. Social values, norms, and social control
   2.4. Social status and role
3. Culture
   3.1. Culture defined
   3.2. Components of culture
   3.3. Cultural variabilities, universals, alternatives and specialties
   3.4. Culture lag culture lead
   3.5. Socialization, the individual and the group
4. Social processes
   4.1. Modes of social process
   4.2. Social stratification
   4.3. Social mobility
   4.4. Social change
5. Sociological perspectives
   5.1. Structural functionalist
   5.2. Radical structuralism
   5.3. Interpretive sociology
   5.4. Critical humanism
6. Methods of social action
   6.1. Methods of social work
   6.2. Planned social action
   6.3. Change agents and professional behavior

PART II: ANTHROPOLOGY

Learning objectives

At the end of the course students will be able to:

1. Define anthropology and mention two major fields of anthropology
2. Explain the relationship of anthropology to the other sciences and its family, religion, language, arts etc to health and health problems.

Course contents

1. History of anthropology
2. Definition of anthropology
3. Nature and scope of anthropology
4. Fields of anthropology
   - Physical anthropology
   - Cultural anthropology
5. Relationship of anthropology to other sciences
6. The application of anthropology
7. Culture
   - Concept of culture
   - Definition of culture
   - Pattern of culture
   - Culture dynamics
   - Perception and cognition
   - Cultural duality and behavioral integration
8. Race ethnicity and health problems
   - Ethnology and social organization
9. The family
   - Marriage and mating
   - Marriage and kinship
   - Monogamy and polygamy
   - Bride price and dowry

- Divorce

10. Religion
    - The role of religion in human societies
    - Personalized supernatural
    - The theory of spirit possessions
    - Religious systems as culture all
    - Constituted defiance mechanisms
11. Language
    - The role of language in culture
12. The arts
    - Arts and the individual
    - Arts and communication
13. Political organization
    - Nature and form of political organization
14. Anthropology and health
    - Contribution of anthropology to psychosomatic medicine
    - Psychological theories of Windigo "psychosis" and preliminary application of Amodels' approach
    - Clinical anthropology
    - The care component in a health and healing system nutritional anthropology

PSYCHOLOGY

Credit hours: 2

Learning objectives

At the end of the course the student will be able to:

1. Fully understand the basic terms, facts, and concepts dealt with in the course.
2. Distinguish the stages of development in human beings and infer its implication to the real life situations.
3. To understand the basic concepts that characterize psychology as a tool of effective treatment and therapy
4. Relate knowledge of psychology of personality with other concepts for a better health care.
5. Explain the essence of the subject and its importance in relation with the future career.
6. Provide the medical practitioners with knowledge and skills that can enable them to discharge their duties more effectively and efficiently.

Course content

1. The subject matter psychology
    - Definition of psychology
    - Methods in psychology
    - School of thoughts in psychology
    - Branches of psychology
2. Developmental psychology
    - Stages of development
    - Prenatal development
    - Postnatal development
3. Psychology of personality

- Definition of personality
- Theories of personality
- Personality traits
- Personality adjustment and mental hygiene
- Methods of personality assessment

4. Abnormal psychology
   - Abnormality in every day life
   - Classifying psychological disorders
   - Personality disorders
5. Therapy for psychological disorders
   - Biomedical therapies
   - Psychodynamic therapies
   - Behavioral therapies
   - The emerging field of behavioral medicine psychotherapy

CIVICS AND ETHICAL EDUCATION

Credit Hours: 1

Learning Objectives

The main objective of this course is to familiarize health officers with fundamental elements of civics and its perspectives regarding democratic system, rule of law, equality, justice, patriotism, responsibility, and self-reliance.

Course Content

1. Introduction
   - The purpose of civic education
   - The need of the establishment of democratic society in Ethiopia
   - Definition of rule of law
2. Rule of law
3. Equality
4. Justice
5. Patriotism
6. Responsibility
7. Self-reliance
8. Saving

INTRODUCTION TO COMPUTER APPLICATION

Credit hour: 1

Learning objectives

At the end of the Course the students should be able to

- Explain foundation concepts and principles of computer science
- Exercise common application software in day-to-day activities

Course Content

1. An overview of Computer Science, Introduction to PC Applications.
    - Definition of computer, computer science, application and purpose of computers, etc
2. Historical development of computers
    - Types of computers, historical development of computers along with the major events that marked transitions from generation to generation to generations, stored program concept.
3. Organization of a computer system
    - Parts of computer system
    - Soft wares
        - Operating soft wares
        - Common application soft wares (MS word, Excel, Power Point)

Instructional methods → Lectures, Laboratory

MEDICAL MICROBIOLOGY

Credit hours: 3

Learning Objectives

This course is intended to give health officer students a basic knowledge of the general characteristics of the pathogenic micro-organisms (especially of bacteria, rickettsia and viruses) as well as a sound knowledge of the systematic bacteriology, mainly relevant to clinical infections, chemotherapy and disease prevention.

Course content

1. **Introduction**: history, spontaneous generation, germ theory of disease, branches and main objectives of medical microbiology, eucaryotic and prokaryotic cells.

   General bacteriology: bacterial cytology, morphology and structure of bacterial cells.

   - Identification of bacteria: microscopic morphology and staining reactions (The gram stain, acid fast stain), isolation of organisms in pure culture.
   - Nomenclature and taxonomy of bacterial cells
   - Nutrition, growth and multiplication

   General virology: general properties, differences of viruses from microorganisms, structures and components, classification and methods of cultivation.

   General mycology: general properties, classification, reproduction laboratory diagnosis.

   Microbial genetics: mutation, mechanisms of gene transfer in bacteria.

   Antimicrobial agents: principles mechanisms of action, bacterial drug resistance.

Host – parasite relationship: host factors, parasite factors, environmental factors, and other factors.

- Disinfections and sterilization: principles and practice
- Epidemiology of infectious diseases: sources of infections, ways of transmission of infections, prevention and control of infectious diseases.

2. **Immunology**

- Defence mechanisms: non – specific (resistance), specific immunity, significance of the immune system.
- Definition of terms and characteristics: memory, specificity, non – self-recognition, immunity, antigen, hapten, antibody.
- The cellular basis of the immune response: the lymphoid tissues, evolvement of B - and T – cells from lymphoid stem cells, B – cells require processing in bursa of fabmeins – source of antibody development and humoral immunity; T – cells, source of cell - medicated immunity.
- Immunity to infections: immunity to bacterial, viral and parasitic infections.
- Hypersensitivity reactions: types and characteristics
- Clinical immunology: diagnostic applications of immunology (serological reactions), immunoprophylaxis (use of vaccines) and immunotherapy.

3. **Systematic bacteriology**

- Gram-positive cocci: staphylococcus aureus, streptococci, streptococcus pneumonia, anaerobic gram - positive cocci
- Gram – negative cocci: neisseria meningitides, nesseria gonorrhea
- Non - spore former gram – positive bacilli: corynebacterium diphtheria, listeria monocytogenes, mycobacterium spp.,
- Spore – former aerobic bacilli: Bacillus anthracis
- Anaerobic spore formers: clostrium species

- Enterobacteriaceae: salmonella, shigella, E. coli, klebsiella, proteus, other opportunistic pathogens.
- Pseudomonas: P. aeruoginosa
- Gram –negative short rods: brucella SPP., Haemophillus SPP. Bordete SPP.
- Vibrionaceae: vibrio cholera, campylobacter SPP.
- Gram-negative anaerobic organisms: bacteroides fragilis, fusobacterium SPP.
- Spirochaete: Treponema, Borrelia, Leptospira
- Rickettsiae: R. prowazekii, R. typhi (R.mooseri)
- Chlamydiae: C. trachomatis, C. psittaci
- Mycoplasma SPP.

4. **Systematic mycology**
   - Dermatophytes: microsporum, epidermophyton, trichophyton
   - Yeast and yeasts-like fungi: Candida albicans, Cryptococcus neoformans
   - Moulds: Aspergillus, Rhizopus, Mucor
   - Dimorphic fungi: Histoplasma capsulatum, Sporothrix schenckit mycetoma (madura foot).
5. **Systematic virology**
   - DNA viruses: adenovirus, herpes simplex, varicella zoster, and Hepatitis B virus
   - RNA viruses: polio viruses, rhinoviruses, hepatitis A virus, Rota virus, yellow fever virus, influenza virus, mumps, measles, rabies, Human Immuno-deficiency Virus (HIV).
6. ***Microbiologic practicals***
   - Introduction: laboratory rules and safety procedures, demonstration and use of laboratory equipments and materials.
   - Microscopic morphology of bacteria: demonstration and practice using gram, Methylene blue and Ziehl Neelsen stains,

- Demonstration of basic bacteriological techniques: preparation of culture media, inoculation of culture media, pure culture techniques, reading and interpretation of bacterial growth, staining and identification.
- Demonstration of drug sensitivity tests: principle and techniques, reading and interpretation.
- Demonstration and interpretation serological reactions: VDRL, widal and slide agglutination tests.
- Disinfection and sterilization: demonstration of equipment and practice.

PARASITOLOGY

Credit Hours: 2

Course objectives

This course is intended to give health officer students a basic knowledge of the general morphology and biologic characteristics of the various parasites that are essential for diagnosis as well as a detailed knowledge of the common parasites (i.e. the protozoa, helminthes and arthropods of medical importance) prevalent in this country mainly with emphasis on the Epidemiology, diagnosis and treatment of protozoa and helminthic infections.

Course content

1. General medical parasitology

Concepts of medical parasitology: definitions and characteristics (a parasite, a host parasitism, definitive host, intermediate host...) stages of parasitism, (facultative parasites, obligate parasites, ectoparasites, endoparasites)

Classification of medical parasitology: protozoa, helminthes (worms) arthropods.

Protozoa: general properties, morphology & life cycles and classification

Helminthes: general properties, morphology and life cycles, classification.

Arthropods: general properties and their roles as vector of diseases.

2. Systematic medical parasitology

2.1. Protozoology

Intestinal protozoa: Entamoeba histolytica, Balantidium coli.

Mucous membrane: Naegleria SPP.

Blood and tissue flagellates: Leishmania tropica, L. brasiliensis, L. donovani, trypanosome rhodesiense, T. gambiense, T. cruzi.

Intestinal and genital flagellates: Giardia lamblia, Trichomonas vaginalis.

Sporozoa: malaria (4 species of plasmodium), Toxoplasma gondii, Pneumocystis carinii, Isosopora (belli and hominis), Cryprosporidium.

2.2. Helminthology

Trematodes (flukes): blood flukes schistosomes (S.mansoni, S.haematobium and S.Japonicum), intestinal flukes (fasciolopsis buski, Heterophytes), liver flukes (Clonorchis sinensis, Fasciola hepatica) lung flukes (paragonimus westermani).

Cestodes: Taenia saginata, T.solium, Hymenolepis nana, Diphylobothrium latum, Echinococcus granulosus, Echinococcus multilocularis, cysticercus cellulosae, sparagnum.

Nematodes: nematodes of the digestive tract and related

Species: Ascaris lumbricoides, Trichuris trichuria, Enterobius vermicularis, Ancylostoma duodenale, Necator Americans, Strongloides stercoralis, trichostrongylus SPP., trichinella spiralis, toxocara species, the filariae.

Parasailing man: Wucherera bancorfti, brugia malayi Onchocerca volvulus, Loa Loa, acanthocheiloma perstans, mensonella ozzardi, Dracunculus medinensis.

Arthropods

Arthropods of medical importance (with special emphasis on vectors, ectoparasites): crustacia, arachnida, insecta.

2.3. Practices in parasitology

Introduction: demonstration and use of parasitology laboratory equipment and materials, rules and safety in parasitology laboratory.

Collection of specimens- demonstration: capillary blood and venous blood for malaria and other hemoparsites stool for protozoan cysts, trophozoite and helminthic ova and larvae.

Microscopic morphology of parasites: demonstration and practice of malaria parasites, leishmania tropica, leishmania dnovani (LD bodies) and trypanosome in stained films; demonstration and practice of protozoan cysts, helminthic ova and larvae in stool.

Direct and concentration techniques for stool examination; demonstration and use.

PATHOLOGY

Credit hours: 4

Course objectives

This course is intended to give the health officer to know the basic knowledge of general morbid anatomy and some histopathology, which will be helpful in reaching at a diagnosis.

Course content

1. Introduction
    - History of pathology
    - Core aspects in pathology (etiology, morphology, pathogenesis and manifestations).
    - Functions and methods of pathologist
    - Course of disease
    - Outcome and consequences of diseases
    - Clinical and sure signs of death

2. Cell injury
    - Mechanisms and causes of cell injuries.
    - Morphology of injured cells-reversible and irreversible
    - Accumulations in the cell-normal and abnormal
    - Sub cellular alterations – lysosome, mitochondria, endoplasmic ret. and cytoskeletone.
    - Cellular adaptations – atrophy, hypertrophy, hyperplasia and metaplasia.
    - Extracelluar changes – calcification, hyaline changes and amyloidosis.

3. Inflammation

    Definition and terms (exudates, transudate and edema)
    - Pathophysiology and local signs

- Classification especially morphologic – including abscess, empyema etc.
- Lymphangitis, septicemia and bacteraemia
- Granulomatous inflammation.

4. Healing and repair
   - Processes of repair – regeneration and scarring
   - Wound healing – 1^0 union, 2^0 union
   - Examples – incisional skin healing
     - Bone fracture healing
5. Circulatory disorders
   - Edema – pathophysiology and morphology
   - Haemorrhage and coagulation system
   - Thrombosis and embolism
   - Ischemia and infarction
   - Shock and DIC
6. Immunopathology
   - General features – passive active and natural immunity
     - Definition – immunity, antigens antibodies, haptens, grafts and types of grafts.
     - Immunoglobulin and types
   - Hypersensitivities: type I- IV
   - Autoimmune diseases – mechanisms
     - Examples
   - AIDS and other immunodeficiency
7. Selected chronic immunodeficiency

   (Tropical disease and sarcoidosis)
   - Tuberculosis
   - Leprosy
   - Syphilis
   - Schistosomiasis
   - Malaria

- Leishmaniasis
- Amoebiasis
- Sacoidosis

8. Metabolic, Nutritional and Congenital Diseases
   - Diabetes mellitus
   - PEM (Marasmus and kwashiorkor)
   - Keratomalacia (Vit. A), Rickets and oesteomalaica (Vit. D) Scurvy (vit. C) beriberry (B) Hemorhromatosis and anaemia. (FE, Vit.B12)
   - Teratology and chromosomal aberrations
9. Neoplasia
   - Definitions
   - Nomenclature (Benign and malignant)
   - Characteristics – Differentiation, growth rate, invasion and metastases
   - Carcinogenesis and dysplasia
   - Effects of tumour on host
   - Lab diagnosis of cancer
10. Others
   - Calculi – renal (hydronephrosis and ureamia)
     - Biliary (cholecystitis and jaundice)
     - Cysts and pseudo cysts
     - Polyps

Histology sessions: -

A. Biopsy and cytology techniques
B. Reversible and irreversible cell changes
   - Fatty changes
   - Cell swelling (hydrpic/vacuolar degenerations)
   - Necrosis
C. Extracellular changes
   - Amyloidosis
   - Calcification

- Hyaline changes

D. Inflammation
   - Acute (purulent) inflammation – including abscess
   - Chronic inflammations

E. Circulatory disturbance
   - Thrombosis
   - Infarction
   - Embolism

F. Neoplasm
   - Characteristics of benign and malignant neoplasia

PHARMACOLOGY

Credit hours: 3

Learning objectives

After completing the course, students will acquire sound knowledge on pharmaco therapeutic basis of therapeutics, which will enable them to:

- Decide on drug treatment, select and apply them effectively and safely for the benefit of the patient
- Better understand drug adverse effects/toxicities particularly their recognition, prevention and treatment
- Master the principles and practice of rational therapy
- Share the responsibilities to solve the emerging social, economic and medical problems of drug use, misuse and abuse in Ethiopia.

Course content

I. General pharmacology

1. Introduction (definitions, subdivision, source of drugs)
2. Pharmacodynamics

2.1. Site & mechanisms of drug action

- Character of receptors and drugs (binding mechanisms and physico - chemical properties of drugs)

2.2. Drug – receptor interactions

2.2.1. Dose – response – relationship in vitro (concepts: affinity, intrinsic activity, agonist, partial agonist/antagonist, agonist – antagonist interactions)

2.2.2. Receptor – effector coupling (signaling mechanisms, second messengers)

2.2.3. Dose – response – relationship in collectives (concepts: ED50, LD50, therapeutic index, potency, maximum efficacy)

3. Drug disposition (pharmacokinetics)
   3.1. Passage of drugs across a bio – membrane (passive, specialized or carrier mediated transport mechanisms)
   3.2. Routes of drug administration (advantages and disadvantages of each route)
   3.3. Drug absorption (factors modifying absorption, first – pass effects, bio availability, drug formulations, special drug delivery systems)
   3.4. Drug distribution (volumes, plasma protein bindings, distribution spaces – fat, BBB, placenta)
   3.5. Drug biotransformation (phase I & II reactions, consequences of enzyme induction & inhibition, formation of toxic metabolites, factors influencing metabolism)
   3.6. Excretion of drugs (renal – filtration, passive reabsorption, active secretion; biliary excretion & entero – hepatic – circulation; other routes of excretion)
   3.7. Pharmacokinetic variables and calculation of dosage (Vd, half – life, clearance, steady state, drug accumulation, maintenance dose, loading dose, dosing intervals)
4. Factors affecting dose and drug action
   - Age, sex, body weight, surface area, path-physiologic states of the patients
   - Drug allergy, genetic abnormalities, idiosyncrasy
   - Hypo-and hypersuceptibility, tolerance, dependence
   - Routes and time of administration, drug cumulation
   - Drug – drug interactions (classification, mechanisms)
5. Drug adverse effects and drug toxicities

II. Pharmacology of Autonomous Nervous System
1. Introduction
2. Drugs acting on the cholinergic system
   2.1. Cholinomimetics

2.1.1. – Directly acting – pilocarpine

2.1.2. - Indirectly acting – neostigmine and physeostigmine

2.1.3. – Poisoning and treatment of organophosphates

2.2. Cholinergic receptor blockers

2.2.1. Antimuscarinics (atropine, scopolamine, atropine – like drugs used in asthma and peptic ulcer,

2.3. Neuromuscular blockers

2.3.1. Non depolarizing (gallamine, d- tubocurarine)

2.3.2. Depolarizing (succinylcholine)

2.3.3. Other antispastic drugs (diazepam, dantrolone, etc.)

3. Drugs acting on the adrenergic system

3.1. Sympathomimetics (adrenaline, salbutmol and fenoterol nasal decongestants, phenylephrine, ephedrine)

3.2. Adrnergic blockers

3.2.1. Beta – blockers (propranolol, atenolol)

3.2.2. Neuronal blockers (reserpine, guanethidine, alpha MD)

III. Cardiovascular Pharmacology

1. Pharmacotherapy of hypertension

1.1. Pathophysiology of hypertension

1.2. Sites & mechanisms of drug action

1.3. Individual drugs (propranolol, reserpine, alpha methyl DOPA, guanethidine, hydralazine, captoril, diuretics – furosemide & hydrochothiazide).

1.4. Principles of drug combination therapy

1.5. Treatment of hypertension emergencies (crisis)

2. Pharmacotherapy of angina

2.1. Pathophysiology and classification of angina

2.2. Therapeutic approaches (nitrites – nitroglycerin, beta blockers – popranolol, calcium antagonists)

3. Pharmacotherapy of congestive heart failure & oedema

3.1 Pathophysiology of CHF

3.2 Principles of therapy (positive ionotropics – digoxin, diuretics – furosemide & hydrochlorthiazide, vasodilators

4. Antiarrhythmics (introductory note)

5. Pharmacotherapy of hypotensive states

5.1. I.V fluids

5.2. Correction of electrolytes and acid-base balance

5.3. Vasoconstrictors

5.4. Management of different types of shock

IV. Blood pharmacology

1. Pharmacotherapy of anaemia

1.1. Definition & physiological consideration

1.2. Antianaemic drugs

1.2.1. Iron (metabolism, requirements, preparations)

1.2.2. Vitamin B_{12}, folic acid

1.2.3. Others

2. Coagulants & anticoagulants

2.1. Physiology & pathophysiology of blood coagulation

2.2. Coagulants (local, systemic – vitamin K)

2.3. Anticoagulants (injectable – heparin, oral – warfarin, in vitro for blood bank - sodium oxalate)

2.4. Inhibitors of platelet aggregation (acetylsalicylic acid)

V. GIT Pharmacology

1. Pharmacotherapy of peptic & duodenal ulcer

1.1. Antacids (magnesium and aluminium salts)

1.2. H_2 – blockers (cimetidine and ranitidine)

1.3. Others (antimuscarinics, mucosal protectors)

2. Pharmacotherapy of emesis (chlorpromazine, antihistamines, scopolamine, vitamin B_6 etc)

3. Treatment of diarrhea (chemotherapy, i.v. fluids & ORS, adsorbents – kaolin & pectin, symptomatic therapy)
4. Symptomatic treatment of constipation
   4.1. Classifications of laxatives (emollients, cathartics, bulk laxatives), precautions

VI. Pharmacology of Broncho – pulmonary systems
1. Pharmacotherapy of acute bronchial asthma
   1.1. Pathophysiology of asthma
   1.2. Classification of anti asthma drugs (bronchodilatores – beta stimulants & theophylline, glucocorticoids, ketotifen & sodium chromoglycate, others)
   1.3. Management of acute, chronic & status asthmaticus
2. Nasal decongestants, cold & cough preparations
3. Treatment of acute & chronic rhinitis sodium chromoglycate, glucocorticoids, antihistamines)

VII. Pharmacology of the central Nervous system
1. Sedative – hypnotic – anexiolytics (benxodiazepines, barbiturates, alcohols – methanol posoning & treatment)
2. Pharmacotherapy of epilepsy
   2.1. Epilepsy
   2.2. Classification of antiepileptic drugs
   2.3. Choice of drugs in the treatment of epilepsy
   2.4. Management of status epileptics
3. Psychotropic and antiparkinson drugs (only introductory – chlorpromazine, haloperidol, TCA, lithium, L-dopa)
4. Pharmacotherapy of pain
   4.1. Pathophysiology of pain and classification of analgesics
   4.2. General & local anesthetics
   4.3. Treatment of pain with narcotic analgesics – naloxone

4.3.1. Morphine, dependence and withdrawal symptoms & treatment

4.4. Treatment of pain with non-narcotic analgesics (aspirin, paraceramol, dipyrone, etc.)

4.4.1. Analgesic combinations

4.5. Pharmacotherapy of acute & chronic migraine (ASA, ergotamine, popranolol, etc)

4.6. Pharmacotherapy of rheumatic arthritis

4.6.1. Pathophysiology

4.6.2. Drugs (glucocorticoids, NSAID, others)

4.7. Treatment of acute & chronic gout (colchicines, allopurinol, uricosurics)

VIII. Therapy of Endocrine Disorders

1. Pharmacotherapy of diabetic mellitus
   1.1. Treatment of type I (insulin preparations, choice)
   1.2. Treatment of type II (oral hypoglycemics, insulin)
   1.3. Management of diabetic coma
2. Management of thyroid gland dysfunction (introductory) (thyroxin, iodides, antithyroid drugs), drugs for preparing a patient for thyroidectomy, management of thyrotoxicosis crisis
3. Sexual hormones (hormonal contraceptives)
4. Corticosteroids
5. Oxytocic drugs (ergometrine, oxytocin)
6. Vitamins, vaccines (introductory)

IX. Chemotherapy

1. Chemotherapy of microbial infections
   1.1. General considerations (mechanisms, drug resistance, misuse & failure of therapy)

1.2. Individual classes (sulphonamides, penicillin, cephalosporins, tetracycline, chloramphenicol, aminoglosporins, quinoline, others – nitrofurantoin, erythromycin, metronidazole, etc.)

1.3. Drugs used in the treatment of tuberculosis, combination & courses of treatment

1.4. Drugs used in the treatment of leprosy

1.5. Choice of antimicrobial to treat common diseases (anaerobic infections, chronic lung disease, UTI, STD, trachoma, salmonellosis, shigellosis, meningitis, gallbladder, endocarditis, gastroenteritis, etc)

2. Chemotherapy of protozoal infections

2.1. Antimalarial (prophylaxis & treatment); chloroquine, fansidar, primaquine, quinine

2.2. Antigiardiasis & trichomoniasis (metronidazole)

2.3. Drugs for leishmaniasis, trypanosomiasis (sodium stibogluconate, suramin)

3. Chemotherapy of fungal infections

4. Chemotherapy of helminthiasis (core drugs: mebendazole, pierazine citrate, metronidazole, diethylcarbazepine, ivermecitin, thiabendazole, praziquntel, levamisole, niclosamide)

HEALTH EDUCATION

Credit hours: 2

Learning objectives

At the end of the course, students will be able to:

1. Define health, education and health education and explain the aims, approaches and dimensions of health education
2. Describe the relationship between health and behavior and mention three factors that influence individual health behavior.
3. Define communication; mention and describe the six elements of a communication model.
4. Explain the rationale for school health education and its three major components.
5. Identify the methods and learning materials of health education and explain the principles of their application.

Course content

1. Introduction
   - Definition
   - Historical development
   - Health education in Ethiopia
   - Aims of health education
   - Purpose of Health education
2. Health related behavior
   - Role of behavior in health and disease
   - Examination of health belief mode
   - Approaches to the diagnosis of health behavior
3. Communication
   - Communication in health education

- Communication model
- Communication process
- Diffusion of innovation
- Quality of effective communication
- Types of communication
- Modes and methods of communication
- Barriers of communication

4. Community diagnosis
   - Predisposing reinforcing enabling causes in educational diagnosis and evaluation approach to community diagnosis.
   - Social diagnosis
   - Relationship between social problems and health problems epidemiological diagnosis
   - Behavioral diagnosis

5. Research methods in health education

   Types of research:
   - Experiments/survey
   - Planning of research
   - Collection of data (Interview questionnaire)
   - Analysis
   - Interpretation
   - Report writing

6. Health education settings

   6.1 Patient education
   - Objectives
   - Rationale
   - Theories of Pt. Education
   - Compliance
   - Methods of improving compliance

6.2 School health education

- Definition
- Scope
- Instructional methods
- Diagnosis of problems
- School health education in Ethiopia

6. Materials and methods in health education

- Lecture method
- Discussion/meeting
- Principles of audiovisual aids
- Evaluation of selected audiovisual aids

TEACHING AND LEARNING METHODOLOGY

Credit Hour: 1

Learning Objectives:

At the end of the course, the student will be able to define/explain:

1. Teaching and learning
2. The principles of teaching and learning
3. The processes involved in teaching
4. The major components of teaching and learning
5. The difference between training and education & adult and children learning
6. The concept and development of curriculum
7. Communication techniques essential for teaching

Course Content:

1. The definition of teaching and learning
2. The principles of learning
3. The processes involved in teaching
4. [Planning, delivery of the planned information, evaluation/checking mastery of the learnt materials]
5. Key components of teaching and learning
   - 5.1 Lesson plan [meaning, contents, the 3 components/parts, features related to unplanned lesson/teaching]
   - 5.2. Selection and use of instructional methods [lecture, group learning, demonstration, field trip, discussion, role play, seminar, workshop, integrated/team teaching, self-directed/independent learning, problem based learning, panel method, conference, case study method, story telling, reflection and etc..]
   - 5.3 Appropriate use of various teaching techniques [introducing content outline, clear transition between topics and subtopics, changing pace

during lectures, using question and answer, change of voice, enthusiasm during deliberations, body movement/language, use of reinforces [good, excellent, well-done, etc.], establishing eye contacts, repeating main points, use of relevant examples, use of clear and simple language, good handwriting, appropriate use of time, control and regulation of teaching environments [physical & psychological] including air circulation and sitting arrangements, etc

5.4. Teaching/learning resources/materials/tools

- Principles of using teaching materials [preparing in advance, knowing how to use them, using them with verbal presentation, ensuring relevance, easy visibility and audibility]
- Essentials of teaching resources [motivate the students, break the momentum of long sessions, makes learning active through stimulating students participation and students can learn from them independently]
- Determinant factors for using teaching materials [availability, objective of the teaching, number and background of the students, students' grouping etc.]
- Examples of teaching resources [blackboard, books, overheads, TV & deck, LCD, slide projector, handouts and etc.]

5.5. Selection and use of evaluation tools - Testing & measurement [definition, purpose, type/devices, difference between evaluation, assessment and examination]

6. Effective communication technique [model, types, process, barriers and ways of tackling them and etc.]
7. Teacher and students' relationship [characteristics of a teacher and personality traits]
8. Children and adult learning [similarity and difference]
9. Difference between training and education [formal, informal and non-formal]
10. Introduction to curriculum development

EPIDEMIOLOGY

Credit hours: 3

Learning objectives

At the end of the course the student will be able to:

- Understand the principles of Epidemiology
- Describe concepts of disease causation
- Calculate the measures of disease and death
- Understand types of study design
- Investigate and control outbreaks and epidemics
- Describe the purpose and types of surveillance
- Understand the factors that affect validity of studies

Course contents

1. Introduction to Epidemiology
   - Definition
   - History of Epidemiology
   - Use/applications of Epidemiology
2. Types of Epidemiology
   - Descriptive
   - Analytic
3. Disease causation
   - Concepts of disease causation
   - Models of disease causation
4. Natural history of diseases and levels of prevention
   - Natural history of disease
   - Levels of prevention
5. Components of the infectious process
6. Quantifying occurrence of events

- Numbers
- Ratio
- Proportion
- Rate

7. Measuring disease occurrence
    - Incidence rate
    - Prevalence rate
8. Measuring occurrence of death
    - Mortality rates
    - Proportions
    - Ratios
9. Public health surveillance
    - Definition
    - Purpose of surveillance
    - Types of surveillance
    - Activities in surveillance
    - Notifiable diseases
10. Descriptive study designs
    - Purpose of descriptive studies
    - Types of descriptive study designs
11. Observational analytic study designs
12. Intervention studies
    - Types of intervention studies
    - Analysis and interpretation
13. Measures of strength of association
14. Analysis of cause effect relationship
    - Validity of studies
    - Role of chance
    - Role of bias
    - Role of confounding factors

- Evaluation of overall evidence for a cause-effect relationship

15. Screening in disease control
    - Definition
    - Diseases appropriate for screening program
    - Criteria for establishing screening program
    - Validity and reliability of tests
    - Sensitivity and specificity
    - Predictive value of a test
16. Investigation of an epidemic
    - Definition of terms (endemic, hypo-endemic, hyper-endemic, holo-endemic, cluster of cases, outbreak, epidemic, pandemic)
    - Types of epidemics
    - Steps in epidemic investigation
    - Prevention and control strategies of epidemics

BIOSTATISTICS

Credit hours: 3

Learning objectives

At the end of the course the student will be able to

1. Discuss the role of statistics in health sciences and explain the main uses of statistical methods in the broad field of health care.
2. Describe methods of collection, recording, coding and handling data.
3. Recognize the relative merits and demerits of the different ways of data presentation.
4. Calculate measures of central tendency and dispersion and present data in the form of tables, graphs etc.
5. Identify and make use of data from existing health records.
6. Calculate and interpret vital statistics
7. Apply different techniques of sampling
8. Differentiate between point and interval estimation.
9. Explain the meaning and application of confidence limits
10. Explain the context and meaning of statistical significance.

Course content

1. Introduction to statistics
   - Definitions
   - Importance in health sciences
2. Descriptive statistics
   - Scales of measurement
   - Collection and organization of data
   - Presentation of data
   - Measures of central tendency and dispersion
3. Vital statistics
4. Health statistics

- Sources of data
- Measurement of morbidity and mortality
- Resource and service statistics

5. Probability theory and probability distribution
   - Definition
   - Rules
   - Binomial distribution
   - Normal distribution
6. Sampling theory
   - Types and techniques of sampling
7. Elementary statistical estimation theory
   - Point estimation
   - Interval estimation
   - Sample size determination
8. Statistical testing
   - Common tests of statistical significance (Z – test, T – test and chi – square test)
   - Steps in statistical testing

ENVIRONMENTAL HEALTH AND ECOLOGY

Credit hours: 3

Learning objectives

At the end of the course the students will be able to:

1. Understand the basic principles of environmental sanitation, and their importance for health protection
2. Realize the practical techniques in planning, development and maintenance of safe water supplies, waste disposal facilities. Act as food inspector in the process of safeguarding and control food products, investigate food borne outbreaks, and assess the health condition of food employees.
3. Identify vectors of health importance and introduce appropriate control measures.
4. Know the requirements of healthful housing and institutions.
5. Solve the health and safety problems encountered in industries, various occupation and recreational areas.
6. Apply health and safety precaution and methods of control
7. Investigate accident and occupational health hazards of particular relevance to the environmental health.
8. Define ecology and explain some ecological concepts related to diseases.
9. Describe the man-environment interaction and the effects on health and diseases.
10. Mention the major pollutants of the biosphere and explain their effects on human health, animal and plant life and non-living materials.

PART I: ENVIRONMENTAL HEALTH

Course content

1. Introduction to environmental health
   - Definition of terms
   - History of environmental health
   - Components of environmental health
2. Community water supply
   - Introduction
   - Importance of water
   - Water and disease
   - Occurrence of water
   - Impurities of water
   - Sources of water
   - Development of water sources
   - Treatment of water:
     - Small-scale community water treatment
     - Home made water treatment
3. Community waste disposal:
   - Definition of terms
   - Classification of waste-solid waste and liquid waste

   A. Solid waste disposal:
     - Cleaning system
     - Storage system
     - Disposal system

   B. Liquid waste disposal:
     - Public health importance
     - Relationship of excreta to health and hygiene
     - Common excreta disposal system
     - Usage of excreta disposal system

4. Food sanitation

- Introduction – man's basic diet, historical development, community concept of food
- Definition of terms
- Objective of food sanitation and inspection
- Food borne illnesses
  - Types of food borne illnesses
  - Channel of transmission
- Food sources and suppliers
- Need of food protection
- Proper food protection measures:
  - Sanitary requirements and cleanliness of structure facilities, equipment and furniture
  - Strict observation of the health and hygiene of food service employees and application of appropriate food handling practices
  - Proper preservation of food products to prevent spoilage
  - Control of vectors in food services
- Routine inspection, licensing procedure and legal enforcement

5. Vector control (Arthropod and rodent control)

- Definition of terms
- Classification of insects
- Identification of insects
- General effects of arthropods
- Disease transmission (cause and type)
- Common control methods of arthropods
- Basic sanitation
  - Physical measures
  - Chemical measures
  - Biological control

- Rodent problems and infestation
- Rodent destruction and control (rat trapping proofing, poisoning and basic sanitation)

6. Housing and institutional sanitation
    - Introduction
    - Public health importance of shelter
    - Basic principles of healthful housing
    - Zoning and town planning
    - Sanitary facilities requirements for designing construction and house-keeping
    - Institutional sanitation
        - Site and location
        - Basic design and construction
        - Basic health needs
        - Safe environment
        - Pest control
7. Occupational health and safety
    - Introduction
    - Definition of terms
    - The scope and goal of occupational health
    - Physiological effect and illnesses resulting from occupational hazards
    - Physical hazards
    - Chemical hazards
    - Control of occupational hazards
    - Safety precautions and protective devices
    - Monitoring. Measurement and assessment of hazards
    - Instruments and services used in occupational health

Part II: ECOLOGY

Course content

1. Ecology: Introduction
    - Scope
    - Application of ecology
    - Ecological model of health and disease
    - Some ecological concepts related to disease
        - Concept of climax
        - Concept of ecological imbalance
2. Man -environment interaction
    - Definition
    - Genetic and environmental determinants of health
    - Effects of the physical environment of health and disease
    - Adaptation
    - Medical geography
    - Geo-medicine of Ethiopia
3. Biosphere and its pollution
    - Definition of the biosphere
    - Limits of the biosphere
    - Effect of technology and wastes on the biosphere
4. Discussion of specific biosphere pollutants
    - Water pollution
    - Definition
    - Effects of water pollutants
    - Industrial wastes
    - Resistant objects
    - Biocides
    - Fertilizers and detergents
    - Non degradable pollutants

- Thermal pollution
- Mercury
- Conservation of water resources

5. Pesticide pollution
   - Definition of pesticides
   - Classification
   - Uses (Agriculture, Health)
   - Classes of insecticides
     - Natural (plant origin)
   - Inorganic
     - Petroleum oils
     - Chlorinated hydrocarbons
     - Organophosphorous
     - Corbamates
   - Ecological effects
     - Biological magnification
     - Persistence
     - Biological resistance
     - Effect on non-target fauna and flora
     - Effect on man's health
     - Measures to reduce hazards to the biosphere

6. Air pollution
   - Constituents of ambient air
   - Historical remarks on air pollution
   - Definition of air pollution
   - Types, sources and effects of some important air pollutants
   - Sulphur, carbons, nitrogen, ozone, metals
   - Metrological factors in air pollution
     - Temperature inversion
     - Green house effect
     - Acute air pollution episodes

- Health effects of air pollution
  - Acute episodes
  - Chronic
- None health effects
- Implication for developing countries

7. Radiation Ecology
   - Review of the atomic structure
   - Ionizing and non-ionizing radiation
   - Definition of radioactivity
   - Types of radiation
   - Sources of radiation
   - Uses of unclear energy
   - Effects of nuclear radiation
     - Persistence
     - Acute radiation exposure
     - Low level exposure
     - Chronic and occupational exposure
     - Accidents
     - Fall out
   - Implication for developing countries

DISASTER PREVENTION AND PREPAREDNESS

Credit Hour: 1

Course Content

1. Definition of disaster
2. Epidemiology of disaster in Ethiopia
3. Causes of disaster
   - Natural causes
   - Human causes
4. Consequences of disaster
   - Social reactions
   - Population displacement
   - Communicable diseases
   - Climatic exposure
   - Food shortage and malnutrition
   - Mental health
5. Causes and health consequences of specific disasters
   A. Deforestation
   B. Drought
   C. Epidemic
      - Elaboration of risk reduction measures
        a) Disaster preparedness
        b) Disaster response
        c) Disaster recovery
        d) Disaster mitigation
        e) Development
        f) Adaptation to climatic change

   D. Pests
   E. Floods

i.Primary exposure

- Acute effects
- Long term effects

ii.Reducing health effects

F. Land slides

G. Pollution: air pollution, marine pollution, fresh water pollution, global warming, ozone depletion, health consequences of pollutions

H. Fires and explosions

- Burns
- Structural loss
- Explosions

6. Prevention and control of disaster

- Declaration of disaster
- Relief pain
- Health intervention
- Objectives of health disaster preparedness and response
- Phases of disaster

a) Non-disaster and inter-disaster phase

b) Phases of disaster

- Early warning
- Implementation of protective measures
  - Initial rapid assessment
  - Management of mass casualties and acute illnesses

c) Post disaster epidemiological surveillance

- Disaster control activities
- Environmental health management
- Rehabilitation

7. Role of PHCU team in the event of disaster

COMMUNICABLE DISEASE CONTROL

Credit hours: 2

Learning objectives

At the end of the course students will be able to:

- Define and differentiate communicable and non-communicable diseases.
- Diagnose and investigate the causative agents and mode of transmission
- Identify method of treatment and prevention
- Explain the principles of communicable disease control and undertake epidemic investigation

Course content:

Part I

1. Principles of communicable disease control
   Epidemic investigation
2. Bacterial diseases
   - Tetanus
   - Tuberculosis
   - Shigelloses
   - Typhoid fever
   - Cholera
   - Anthrax
   - Brucellosis
   - Meningitis
   - Pertussis (whooping cough)
3. Rickettsial disease
   - Epidemic typhus

4. Spirochaetal disease
   - Relapsing fever
5. Venereal diseases
   - Syphilis
   - Gonorrhoea
   - Chancroid
   - Lymphogranuloma venereum
   - Lymphogranuloma inguinale

2. Parasitic diseases (intestinal parasites)
   - Amoebiases
   - Giardiasis
   - Trichuriasis
   - Hookworm
   - Ascariasis
   - Strongyloidiasis
   - Schistosomiasis
   - Taeniasis

Part II

1. Parasitic diseases (hemoparasites)
   - Malaria
   - Leishmaniasis
2. Filariasis
   - Wuchereria bancorofti
   - Onchocerciasis
3. Viral diseases
   - Measles
   - Rabies
   - Mumps

- Influenza
- Yellow fever
- Infectious hepatitis
- HIV/AIDS

HEALTH SERVICE MANAGEMENT

Credit Hours: 3

Learning objectives

At the end of the course the student will be able to:

- Understand the meaning and scope of management
- Know contemporary organizational structures, functions and behaviors.
- Make appraisal of the health policy, strategy and structure of the Ethiopia health system.
- Acquire skill in planning, implementing and evaluating health programs.
- Effectively manage health centers and community health posts
- Understand the principles of human resource management
- Make rational use of the available scarce resource

Course content

1. Introduction
   - Definitions of health and public health
   - Meaning and scope of health service management
2. Contemporary organization
   - Structure and function
   - Principles of organization and coordination
   - Concepts of system design and analysis
3. Organization of the Ethiopian Health system
   - Historical development
   - Health policy and strategy
   - Concepts of decentralization
   - Operational and administrative structure of the health system
   - Functions of the difference levels of care

4. The management cycle
   The planning process
   Techniques of implementing health program
   Techniques of monitoring and evaluating health programs
   Elements of communication in management process
   The managerial role in decision-making

5. Principles of personal management
   Employment and recruitment
   Job description and job classification of the health center staff
   Principles and techniques of supervision
   Skills in personnel motivation
   Understanding and managing conflicts
   Understanding group behaviors
   Staffing pattern of health centers, health posts and district hospitals

6. Health service provision
   The concept of coverage
   Pattern of health care utilization
   Determinants of health care use
   Organization and use of the referral system
   Improving quality of care

7. Managing resources
   Managing time, material
   Managing drugs, space
   Use of models in finance
   Budgeting
8. Primary health care
   Principles and concepts
   Organization
   Components

Types and functions of PHC workers

Evaluating PHC programs

9. Management of health centers and community health posts.

Structure and functions

Staffing patterns

Health activities

Health information in the management process

10. District Hospitals

Structure and functions

Staffing patterns

Activities

Roles in supporting PHC

Hospital performance indices

11. District health management

Organization, functions

Staffing patterns

Roles of the district health system

- Consequences of under nutrition [anemia, impaired growth, neurological function and learning capacity]
- Common food sources of nutrients in the community
- Factors affecting bioavailability of nutrients
- Variation of nutritional requirement at different ages and physiological conditions [infancy, childhood, adolescence, pregnancy and lactation]
- Factors affecting nutritional requirement [illness, growth, environment, temperature, body compositions, physical activity, age and sex]
- Nutrition assessment [anthropometric, biochemical/biophysical, clinical and dietary]; Advantages and disadvantages of the different nutritional assessments
- Food quality control measures; Validity and reliability issues and indicators
- Malnutrition [definition, causes, differences between under nutrition and over nutrition, prevention, management and nutritional care of children with severe malnutrition; Early warning signs, need assessment and cut of points for admission to TFC and SFC for adult and children]
- Classification, signs and symptoms of underweight, stunting, marasmus [wasting], kwashiorkor and marasmic – kwash and micronutrient deficiencies [IDD, VAD, IDA, VIT DD[rickets]
- Different options of nutritional intervention in the local context [[Economic approaches, dietary modification, increased production, dietary diversification, ENA, advantages and disadvantages of the above interventions options in rural and urban settings]
- The Essential Nutrition Actions [components and the six critical contact points]
- Optimal breastfeeding behaviors [benefit of breastfeeding, the key messages on optimal breastfeeding practices]
- Optimal complementary feeding behaviors [key messages in Ethiopian context]
- Women's nutrition [key messages, breaking the vicious cycle of intergenerational malnutrition]
- Key messages for feeding sick child during and after illness

- Key messages for prevention of Vit. A, iron and iodine deficiencies [supplementation, vitamin A rich foods, food fortification and diversification, breastfeeding, deworming children and pregnant women and malaria prevention and control]
- Promotion of optimal breastfeeding behaviors at facility level [the 10 criteria for baby friendly hospital initiative and code of marketing of breast milk substitutes]
- Feeding of infants in special situations [breast problems, HIV and AIDS mother, twins and cleft palate etc]
- Infant feeding options in the context of HIV/AIDS [AFASS criteria]
- Counseling and negotiation in infant and young children feeding options [ALIDRAA]
- Harmful and helpful traditional practices in infant and young children feeding
- Nutritional surveillance
  1. Nutritional policies
  2. Public health and development programs
  3. Timely warning and intervention
- Nutritional anthropology
  1. Socio –cultural factors in food production
  2. Ecological anthropology
  3. Socio-cultural factors in food intake
- Food and nutrition policies
  1. Self sufficiency
  2. Food security
  3. Alleviation of current malnutrition
  4. Alleviation of poverty
- Nutritional planning
  1. Health and nutrition planning
  2. Requirement for planning
  3. The planning cycle
  4. Evaluation

4. Women in development

   The role of women in development

   Status of women and development issues

5. The population policy of Ethiopia

   - Background, objectives, strategies, activities
   - Inter-relationship between population policies and development policies
   - Population policy as part of integrated development policy

6. Millennium Development Goals (MDG's)

HEALTH ETHICS & LEGAL MEDICINE

Credit hours: 1

Learning objectives

I. HEALTH ETHICS

At the end of the course the student will be able to know applied principles of professional conduct in his future relationships with patients colleagues physicians, nurses and other health workers

Course content

1. Definition of ethics
2. Ethics and philosophy
3. Importance of ethics
4. Principles of ethics in medical practice in Ethiopia
5. Principles of ethics for health officers
6. The Hippocratic oath

II. LEGAL MEDICINE

Learning Objectives

At the end of the course the student will be student will be able to:

1. Discuss the major contents of the Ethiopian legislation relative to forensic medicine
2. Describe the various situations in which the health officer is called to testify or advise the courts and the police in medicolegal matters.
3. Outline the contents of a medicolegal report.

Course contents

1. Definition of legal medical
2. Review of legislation relating to crimes with medical aspects
3. The health officer as a witness

4. Different forms of violent deaths.
5. Toxicology
6. The drafting of a medicolegal report

RESEARCH METHODOLOGY

Credit hour: 1

Learning objectives

At the end of the course the students will be able to:

1. List the major types of study designs
2. Describe the main issues in the design, conduct and presentation of a research
3. Prepare a research protocol and conduct a simple research
4. List the major elements that need to be examined when making a critical assessment of a research paper.
5. Demonstrate how to deal with each of these elements with reference to a published paper
6. Describe common terms in computer use and its application

Course contents

1. Types of study designs merits, demerits
2. Sampling
   Methods, advantages, disadvantages
   Accuracy, biases, precision
3. Sample size determination determinants: prevalence, precision, expected response etc.
4. Types of data (primary, secondary)
5. Methods of data collection
6. Developing data collection tools
7. Data processing, analysis and presentation
8. Research proposal writing
9. Scientific proposal writing
10. Application of common statistical package (Computer lab-Epi Info, SPSS)

PHYSICAL DIAGNOSIS

Credit hours: 2

Course objectives

- To acquaint the student with the methods and steps in performing systematic physical diagnosis for the approach towards diagnosing health problems.
- To teach the techniques of history taking and physical examination.

Course contents

I. Lectures

1. Introduction to clinical medicine and the ward set up
2. History taking
3. Techniques of physical examination
4. Respiratory system
5. Cardiovascular system
6. Abdomen and genitourinary system
7. Central nervous system
8. Breast and lymphatic
9. Musculoskeletal system

II. Practical

1. First week
    - Patient interview demonstration
    - Patient doctor role-play by the students
2. Second and third week
    - History taking
    - Physical examination
    - History writing
    - Case presentation
    - Case report

CLINICAL LABORATORY METHODS

Credit hours: 2

Course objectives

- To enable the student to do simple and routine laboratory diagnostic work in the service health centers.
- To provide the student with adequate foundation in laboratory techniques which a health center requires.

Course content

I. Lecture

1. Introduction
2. Haematological tests, example: blood group, blood coagulation
3. Urinalysis and renal function test
4. Liver function test
5. Microbiological examinations
   - Sputum
   - Blood
   - Other body fluids

II. Practical

INTRODUCTION TO NURSING ART

Credit Hours: 1

Learning Objectives

At the end of the course the students will be able to:

1. Recognize important social and psychological aspects of patient care and apply principles and concepts of nursing in helping individuals in need of health care.
2. Assist clients/patients, in the performance of those activities contributing to health or its recovery.
3. Train patient/client self-care including rehabilitative care
4. Make nursing diagnosis, analyse and interpret data, plan, implement and evaluate patient care.

Course content

Unit I: Basic Nursing Arts

1. Definition of nursing
2. Different types of bed making
   - Open
   - Closed
   - Occupied
   - Anaesthetic
   - Cardiac
   - Amputation etc.
3. General care of patient
   - Bed bath
   - Tube bath
   - Back care
   - Mouth care
   - Giving bed pan, urinal

- Perineal care
- Feeding the helpless patient

4. Observation of patient
   - Specimen collection
   - Taking vital signs
5. Enemas
   - Cleaning enema
   - Retention enema
   - Rectal washout
   - Insertion of flatus tube
6. Catheterization
   - Catheterization by plain catheter
   - Catheterization by indwelling catheter
7. Administration and medication by
   - Mouth
   - Intradermal
   - Intramuscular
   - Intravenous
   - Intravenous infusion
   - Blood transfusion
   - Setting for cut down on veins
   - Administration of oxygen
   - Steam inhalation
8. Pre and post-operative care
   - Consent
   - General check up
   - Immediate post operative care
   - Breathing and coughing exercises
9. Clip application and suturing
   - Removal of clip and suture
10. Care of the terminally ill and unconscious patient

11. Post- mortem care

Unit II - Advanced Nursing Arts

1. Chest disorders, therapeutic, and diaghostic procedures
    - Preparing equipment and assisting physician in thoracentesis
    - Preparing and positioning patient for postural drainage
    - Preparing and setting chest water seal drainage bottle.
2. Cardio vascular disorders -therapeutic and diagnostic procedures
    - Preparing equipment and assisting physician with bone marrow puncture.
3. Gastrointestinal disorders -therapeutic and diagnostic procedures:
    - Preparing and carrying out procedures for gastric aspiration
    - Preparing and carrying out procedures for gastric lavage
    - Preparing and carrying out procedures for gastric gavage
    - Preparing and carrying out procedure per gastrotomy feeding
    - Preparing equipment when assisting physicians to perform abdominal procedures
    - Preparing equipment and assisting physician with liver biopsy
4. Neurological disorders -therapeutic and diagnostic procedure
    - Preparing and assisting physician with neurological examination
    - Preparing equipment of assisting physician with lumbar puncture
5. Eye, ear, nose, and throat disorders -therapeutic and diagnosis procedures
    - Eye irrigation and instillation of drops
    - Eye padding and dressings
    - Ear irrigation and instillation of drops
    - Nasal instillation of drops
    - Throat irrigation and gargle
    - Preparing bedside equipment and taking care of a patient with tracheostomy tube
6. Isolation technique

INTERNAL MEDICINE

Credit hours: 7

Course objectives

- To teach the student the approach to the diagnosis, treatment, care and prevention of internal diseases
- To teach the students the common internal diseases

Course content

I. Infectious disease

1. Introduction

   Infectious agent host, incubation period, immunity, fever and other symptoms of infection

2. Acute febrile illnesses

   2.1. Typhus, typhoid relapsing fever

   2.2. Malaria

   2.3. Acute meningitis

   2.4. Viral syndromes

3. Chronic Febrile Illnesses

   3.1. Disseminated tuberculosis

   3.2. HIV/AIDS and principles of ART

   3.3. Leishmaniasis trypanosomiasis

   3.4. Deep fungal infections

4. Helminthes

   - Schistosomiasis
   - Cestodes
   - Round worms

5. Tetanus

   Anthrax

   Brucellosis

6. Sexually transmitted
   Diseases other than HIV

II. Gastrointestinal Diseases

1. Differential diagnosis of abdominal pain
2. Gastritis peptic ulcer disease and upper gastrointestinal bleeding
3. Diarrhoeal diseases infectious and non-infectious
4. Viral hepatitis and other causes of jaundice
5. Chronic liver disease
   - Cirrhosis
   - Hepatoma

III. Respiratory Diseases

1. Differential diagnosis of cough and chest pain
2. Upper respiratory tract infection
   - Influenza
   - Bronchitis
3. Pneumonia
4. Pulmonary Tuberculosis and Pleural effusion
5. Bronchial asthma
6. Suppurative lung diseases and chronic Bronchitis

IV. Cardiovascular Disease

1. Differential Diagnosis of dyspnoea
2. Congestive Heart Failure and Pulmonary oedema
3. Acute rheumatic fever
   - Arthritis
   - Carditis
4. Rheumatic heart disease and sub-acute bacterial endocarditis (infective endocarditis)
5. Hypertension
6. Anginal pain-arrhythmia and Myocardial infraction
7. Circulatory failure, shock

V. Kidney diseases

1. Differential diagnosis of oedema
2. The nephritic syndrome (Acute and Chronic Glomerulonephritis)
3. Renal failure –Acute and Chronic
4. Urinary tract infection

VI. Hematological diseases

1. Anaemia
2. Acute leukaemia
3. Chronic leukemia and lymphomas
4. Haemorrhagic diathesis

VII. Endocrine and metabolism

1. Hyperthyroidism and Hypothyroidism
2. Diabetes mellitus (acute and chronic complications)
3. Gouty arthritis

VIII. Neurological disease

1. Headaches
2. Seizure Disorders
3. Coma and stroke syndromes of right hemiplegia, left hemiplegia, Aphasia
4. Paraparesis and paraplegia
   - TB spondylitis
   - Neurolathrysm

XI. Arthiritidis

- Rheumatoid arthritis
- SLE
- Degenerative joint disease

ENT:

- Sinusitis
- Allergic rhinitis
- Deafness
- Epistaxis (DDx and Mx)
- Mastoiditis

SURGERY

Credit hours: 7

Learning objectives

- To provide basic knowledge in the most prevailing surgical injuries from the standpoint of first aid.
- To enable the student to acquire the working skill to handle the essential life saving surgical skills under a rural settings.

Course content

I. Basic principles of surgery

1. Introduction to surgery
   - 1.1. Types of wounds
   - 1.2. Wound healing
   - 1.3. Wound treatment
2. Surgical infections
   - 2.1. Cellulitis
   - 2.2. Pyomyositis
   - 2.3. Gas gangrene
3. Shock
   - 3.1. Classification
   - 3.2. Hypovolumic
   - 3.3. Septic
4. Fluid and electrolytes
   - 4.1. Normal
   - 4.2. Disturbances of fluid and electrolytes
   - 4.3. Disturbance of acid –base balance
5. Blood transfusion and its hazards
6. Preoperative and postoperative care
7. Aseptic techniques

8. Trauma
   8.1. Road traffic accident, bullet
   8.2. Treatment priorities in trauma victim
   8.3. Burn

II. Systemic surgery

1. Abdominal surgery
   1.1. Acute abdomen
      1.1.1. Definition and differential diagnosis
      1.1.2. Intestinal obstruction
      1.1.3. Acute appendicitis
      1.1.4. Peritonitis
      1.1.5. Others
   1.2. Stomach and duodenum
      - Complications of PUD
      - Gastric Ca
   1.3. Lower gastrointestinal bleeding
      1.3.1. Differential diagnosis
      1.3.2. Investigation
   1.4. Abdominal hernias
      1.4.1. Inguinal and femoral
      1.4.2. Umbilical
      1.4.3. Epigastric
      1.4.4. Complications
   1.5. Abdominal injuries
      1.5.1. Blunt
      1.5.2. Penetrating
   1.6. Perianal diseases
      1.6.1. Perianal abscess
      1.6.2. Fistula in ano
      1.6.3. Anal fissure
      1.6.4. Haemorrhoids

1.7. Differential diagnosis of obstructive jaundice

2. Glands

2.1. Thyroid

2.1.1. Differential diagnosis of Goiter

2.1.2. Management of goiter

2.2. Breast

2.2.1. Differential diagnosis of breast lumps

2.2.2. Acute and chronic mastitis

3. Thoracic Surgery

3.1. Upper air way obstruction and tracheostomy

3.2. Chest injury

3.2.1. Blunt

3.2.2. Penetrating

3.3. Lung abscess, empyema, spontaneous pneumothrax

3.4. Oesophagus

3.4.1. Differential idagnosis of dysphagia

4. Urology

4.1. Urinary calculi

4.1.1. Renal

4.1.2. Ureter

4.1.3. Bladder

4.2. Surgical aspects of urinary infections

4.2.1. Pyelonephritis

4.2.2. Perinephric abscess

4.3. Acute and chronic Urinary retention

4.3.1. Causes

4.3.2. Complication

4.3.3. Management

4.4. Injuries

4.4.1. Blunt and penetrating renal injury

4.4.2. Blunt and penetrating bladder injury

4.4.3. Ureteral injury

4.5. Male genitalia

4.5.1. Phimosis

4.5.2. Balanitis

4.5.3. Epidydimoorchitis

4.5.4. Hydrocele

4.5.5. Urethral stricture

5. Orthopaedic surgery

5.1. Osteomyelitis

5.1.1. Acute

5.1.2. Chronic

5.2. Arthritis

5.2.1. Acute

5.2.2. Chronic

5.3. Fracture

5.3.1. Mechanism, types, fracture healing

5.3.2. Basic Principles of fracture

5.3.3. Long bone fractures and their management

5.3.4. Dislocations and fracture dislocations

5.3.5. Childhood fractures and complications

5.4. Amputation and indications

6. Central nervous system

6.1. Head injuries

6.2. Spinal injuries

7. Anesthesia

7.1. Evaluation and patient preparation

7.2. General anesthesia

7.3. Regional anesthesia

7.4. Cardiopulmonary resuscitation

8. Vascular surgery

Arteriosclerosis and varicose vein

ESSENTIAL OPERATIVE SKILLS

Credit hour: 1

INTRODUCTION TO HEALTH ECONOMICS

Credit hours – 1

Learning objectives

At the end of the course, the student must be able to:

1. Understand elementary concepts of economics and its significance.
2. Apply economic techniques to the planning and managing of health programmes and health services.

Course contents

1. Introduction
    - Definition of economics
    - Concepts and principles
    - Classification of economics
2. Health and development
    - Meaning of health and development
    - Economic indicators
    - Economic growth
    - Sources of poverty
    - Attacking poverty and inequality
3. Needs, consumption, demand
    - Demand as a function of price
    - Elasticity of demand
4. Supply, production
    - Supply as a function of price
    - Elasticity of supply
    - Production
5. Principles of health care demand
    - Health care need

- Health care demand
- Health care utilization
- Relationship between need, demand, supply & utilization
- Role of economic policy
- Demand ad quality of service

6. Health care utilization patterns
   - Determinants of health care utilization
   - Choice of provider and income level
7. Health sector financing
   - Total expenditure in health sectors
   - Types of health care financing
     - Government
     - User charge
     - Insurance
     - Community
8. Cost analysis
   - Meaning of cost
   - Type of economic costs
   - Calculating costs
   - Cost –effectiveness
   - Cost-benefit

REPRODUCTIVE HEALTH

Credit hours: 2

Learning objectives

At the end of the course the student will be able to

1. Define RH
2. List and describe the major components of RH
3. Identify factors affecting RH
4. Determine the magnitude of major RH problems
5. Identify unmet RH needs in the community and address them through appropriate actions.
6. Organize, integrate and evaluate RH services

Course contents

1. Introduction to maternal child health concepts
   - Reasons for MCH programs/ services
   - Objectives of MCH
   - Components of MCH
   - Women's health problems and status
2. Early marriage, teenage pregnancy, unsafe abortion
3. Service delivery at primary, intermediate and tertiary level
   - Emergency RH services (post-abortal care, emergency contraceptives)
   - STI including HIV/AIDS
   - Alcohol and drug abuse
   - Harmful traditional practices (Female genital mutilations, abduction etc.)
   - Ethiopian culture, customs and practices related to RH
4. Monitoring and evaluation of reproductive health programs

OBSTETRICS AND GYNAECOLOGY

Credit hours: 7

Learning objectives

1. To enable the student acquire knowledge and understanding of the physical, social and emotional needs of the pregnant woman and her family.
2. To help the students understand the existing maternal and infant mortality and morbidity problems in the area.
3. To enable him/her develop his/her judgment and skill to manage abnormal Obstetric & Gynecologic cases, including those requiring operative procedures and decide on cases that needs hospital attention.

Course content

General

1. Introduction to obstetrics and gynecology
2. Anatomy and physiology of female genital tract and reproduction
3. The menstrual cycle

OBSTETRICS

I. The physiology and diagnosis of pregnancy

II. Antenatal care

- Aims of antenatal care
- First antenatal care
- Advice to the pregnant woman
- Subsequent antenatal visits
- Drugs used in obstetrics
- PMTCT

III. Abnormalities of pregnancy

1. Minor disorders of pregnancy
2. Medical diseases

2.1. Anemia

2.2. Heart diseases

2.3. Essential hypertension

2.4. Renal disease

2.5. Diabetes mellitus

2.6. Infectious disease

3. Complications caused by pregnancy

3.1. Pregnancy induced hypertension (preeclampsia, eclampsia)

3.2. Antepartum haemorrage

3.3. Oligohydromnios/polyhydromnios

3.4. Multiple pregnancy

IV. Normal labour

1. Physiology and mechanism of normal labour
2. Management of normal labour

V. Abnormal labour

1. Faults in birth canal
2. Faults in the fetus
3. Faults in the uterine function
4. Cord prolapse
5. Prolonged and obstructed labour (Rupture of the uterus)
6. Complications of third stage of labour

6.1 Retained placenta

6.2 Post-portal haemorrhage

6.3 Inversion of the uterus

7. Obstetric operations

7.1. Introduction

7.2 External and Internal version

7.3 Episiotomy

7.4 Manual removal of placenta

7.5 Forceps delivery

7.6 Vacuum extraction

7.7 Destructive operations

7.8 Caesarian section

VI. The normal and abnormal puerperium

1. Physiology and management
2. Complications of puerperium
3. Post-natal examination

GYNECOLOGY

- Abnormalities of menustration – dysmenorrhoea
- Climacterium –Menopause
- Congenital abnormalities of the genital tract
- Disorders of the Vulva
- Disorders of the vagina
- Disorders of the cervix
- Disorders of the uterus
- Displacement of the uterus
- Incontinence of urine
- Disorders of the uterine tubes and ovary
- Endometriosis and infection of the genital tract
- Abortions
- Ectopic pregnancy
- Contraception
- Infertility

PAEDIATRICS

Credit hours: 7

Learning objectives

At the end of the training the student will be able to:

1. Know disease processes and understand basic mechanisms of selected process peculiar to pediatrics in order to explain clinical signs and symptoms
2. Develop skills in pediatric history taking, physical examination, routine laboratory investigations and diagnostic techniques in order to arrive at a diagnosis
3. Know the management of child health problems and be able to manage sick children and acquire skills in teaching mothers about childcare.
4. Develop an understanding of normal growth and development of infants and children.

Course content

I. Neonatology

1. Evaluation and management of new born
2. Classification of newborns
3. Prematurity and low birth weight infants
4. Infections of the newborns
   - 4.1. Sepsis, meningitis, pneumonia, UTI, Conjunctivitis
   - 4.2. Rubella, Toxoplasmosis, CMV infections
   - 4.3. Congenital syphilis, neonatal tetanus
5. Jaundice in the newborns
   - Causes, differential diagnosis and diagnosis
   - Mechanism of development
   - Rh incompatibility

6. Congenital malformations
    - Tracheoesophageal fistula, imperforate anus
    - Congenital lip dislocation
7. Hyaline membrane disease
8. Hemorrhagic disease of the newborn
9. Metabolic disease of the newborn
10. Neonatal seizure

    - Differential diagnosis, diagnosis, treatment

III. Growth and development

- Factors influencing, principles of development
- Growth and development at different age
- Assessment of growth and development

IV. Infectious diseases

Etiology, epidemiology, pathogenesis, clinical manifestations, diagnosis and differential diagnosis, complication, treatment and prevention should be dealt as much as possible.

- Meningitis, meningoencephalitis
- Otitis media, common cold, tonsillitis
- Acute laryngotracho bronchitis, epiglottitis, diphtheria
- Pneumonia, bronchiolitis
- ARI in reference to WHO classification and treatment
- Whooping cough, Measles, Mumps, Poliomyelitis, Chickenpox, Syphilis, Tetanus
- Osteomyleitis and Septic arthritis
- Diarrhoeal diseases
- In reference with the WHO classification and management
- Urinary tract infection
- Tuberculosis – pulmonary and extrapulmonary
- Malaria, Typhoid fever, Relapsing fever, Typhus (more emphasis on malaria)

- Amoebiasis, Giardiasis, Intestinal nematodes
- Pediatrics AIDS and PMTCT

V. Systemic diseases

1. CNS
   - 1.1. Coma
   - 1.2. Seizure disorder and epilepsy
   - 1.3. Mental retardation and cerebral palsy (emphasis also on Downs syndrome)
2. Cardiovascular system
   - 2.1. Congestive heart failure
   - 2.2. Congenital heart diseases
     - Cyanotic –VSD and ASD
     - Acyanotic – TOF and TGA
   - 2.3. Rheumatic heart disease
   - 2.4. Infective endocarditis
3. Genitourinary system
   - 3.1. Acute renal failure
   - 3.2. Acute glomerulonephritis
   - 3.3. Nephritic syndrome
   - 3.4. Fluid and electrolyte disturbances
4. Endocrinology
   - 4.1. Diabetes mellitus and its acute complication
   - 4.2. Hypo and Hyperthyroidism
   - 4.3. Cushing and Addison's disease
5. Haematology and Oncology
   - 5.1. Anemia
   - 5.2. Leukaemia
   - 5.3. Lymphomas
6. Respiratory system
   - Bronchial asthma

7. Immunologic disorders
   7.1. Rheumatic fever
   7.2. Juvenile rheumatoid arthritis

VI. Pediatric Emergencies

1. Head injury
2. Poisoning
   - Organophosphate, Salicylate, Hydrocarbons
3. Burn (assessment, classification and management)
4. Acute abdomen (Appendicitis, Intussusceptions- bowel obstruction)
5. Air way obstruction (emphasis on foreign body aspiration)

VII. Preventive pediatrics

- Immunizations – in reference to EPI (Schedule, type of vaccine, route of administration, side effects, contraindication, delayed immunization
- Screening
- Chemoprophylaxis

VIII. IMCI approach-strategies and impact on child survival

ENT:

- External otitis, foreign body
- Deafness – detection, DDX
- Sinusitis

Skin diseases

- Impetigo
- Scabies
- Eczema
- Fungal infections – taeniasis
- Differential Rx of rashes
  - Maculopapular, vesiculobullous

MENTAL HEALTH

Credit hours: 2

Learning objectives

At the end of the training, the trainee will be able to:

1. Identify and manage major psychotic conditions
2. Identify depression, anxiety and tonic-clonic seizures and management
3. Identify other prevailing non-psychotic psychiatric disorders and take action
4. Council or give appropriate advice and guidance for the emotionally disturbed
5. File data on the psycho-social morbidity of his/her catchments area
6. Give health education to involve the population in prevention, treatment and rehabilitation of mental health
7. Follow-up psychotropic drug taking patients in the community to ensure compliance and assess progress; to know the possible side effects of essential psychotropic drugs and the management of their side-effects
8. Refer difficult cases to central or regional levels

Course content:

1. Clinical approach to mentally ill patient
2. Psychopathological terminology
3. Psychoneurosis
    - Anxiety reactions
    - Dissociate reaction
    - Obsessive compulsive disorder
4. Psychosis
    - Manic – depressive psychosis
    - Schizophrenia
5. Personality disorders

6. Psychosomatic disorder
7. Dependency states
    - Alcohol
    - Drug
8. Principles of management of mentally ill patient
9. Epilepsy
10. Counseling
11. Mental health education

OPHTHALMOLOGY

Credit hours – 2

Learning objectives

At the end of the course the student will be able to:

1. Plan, organize, implement & evaluate promotive and preventive eye care activities.
2. Perform trichiasis/entropion correction surgery of the upper eye lid to prevent blindness for trachoma complications
3. Measure visual acuity
4. Examine the eye with a torch
5. Remove superficial conjunctival foreign body from the eyes
6. Stain the eye with fluorescein to check corneal abrasion
7. 20 tonometry, direct ophtalomoscopy and visual field examination
8. Diagnose, treat and /or refer cases of eye diseases
9. Apply eye ointments, eye pads and /or protective shields correctly
10. Maintain the required recording and reporting for monitoring
11. Train, supervise and support personnel at lower levels

Course content

1. Basic anatomy and physiology of the eye
    - 1.1. Orbit
    - 1.2. Lids & lacrimal apparatus
    - 1.3. Conjunctiva
    - 1.4. Cornea
    - 1.5. Sclera
    - 1.6. Uveal tract
    - 1.7. Lens
    - 1.8. Vitreous
    - 1.9. Retina & optic nerve

1.10. Extra ocular muscles (ocular motility)

1.11. Visual pathways

2. Examination of the eye

2.1. History taking

2.2. Physical examination of the eyes

- Assessment of visual acuity and recording
- Inspection of the eye and lids
- Exposure of the conjunctiva of the lower lid
- Eversion of the conjunctiva of the upper lid
- Inspection of the globe in different directions of gaze
- Examination of infants
- Colour vision tests
- Schiotz tonometry
- Visual field examination
- Direct ophtalmoscopy
- X-ray examination of the orbits

3. Diagnosis and management of ocular disorders

3.1. Orbit:

- Orbital cellulites
- Exophthalmos (proptosis)

3.2. Lids & lacrimal apparatus:

- Hordeolum (sty)
- Chalazion
- Marginal blepharitis
- Entropion
- Ectropion
- Ptosis
- Dacryocystitis (acute & chronic)
- Dry eye syndrome (kerato conjunctivitis)

3.3. Conjunctiva:

- Conjunctivitis & differential diagnosis of red eye

- Trachoma
- Pinguecula, pterygium

3.4. Cornea:

- Corneal ulcers

3.5. Sclera:

- Episcleritis and scleritis

3.6. Uveal tract:

- Uveitis

3.7. Lens:

- Cataract

3.8. Vitreous:

- Opacities and degenerations

3.9. Retina and optic nerve

- Retinoblastoma
- Papilloedema
- Retinal inflammations
- Vascular disorders
- Retinal detachment
- Retinal degenerations
- Optic neuritis and optic atrophy
- Nystagmus

3.10. Squint-amblyopia

3.11. Glaucoma

3.12. Trauma

- Non – penetrating injuries of the eyeball
- Penetrating injuries of the eyeball

3.13. Refractive errors & refraction

3.14. Ocular disorders associated with systemic diseases

- Vitamin A deficiency – Xerophthalmia
- Ocular diseases and Granulomas
- Hereditary disorders

- Endocrine disease and the eye
- The central nervous system and the eye

4. Preventive ophthalmology
   - 4.1. Global & regional status of blindness
   - 4.2. Prevalence and major causes of blindness in Ethiopia
   - 4.3. Preventive measures of "avoidable blindness"

ORAL HEALTH

Credit hour: 1

Learning objectives

At the end of the course, the student will be able to:

1. Plan and organize promotive and preventive health services.
2. Identify and treat common oral and dental problems.

Course content

1. Anatomy of the oral cavity
2. Nomenclature
3. Evaluation and examination
4. Disease of the hard tissue of teeth
5. Diseases of dental pulp
6. Gingivitis and periodontal disease
7. Extraction of teeth – indication and contraindication, techniques, instruments, complications
8. Anesthetic consideration (Advantages, limitations, methods)
9. Trauma of teeth, soft tissue, and jaw
10. Congenital malformation – cleft palate
11. Oral health care

DERMATOLOGY

Credit hours - 1

Learning Objectives

At the end of the Course the students should be able to:

1. Diagnose and treat common skin diseases.
2. Refer cases that need the attention of a dermatologist.

Course contents

1. Introduction to skin diseases
    - 1.1 Review of the normal structure and physiology of the skin and description of skin lesions
    - 1.2 History taking and physical examination of a patient with a dermatologic problem
2. Bacterial infection of the skin
    - 2.1. Impetigo
        - 2.1.1. Bullous impetigo
        - 2.1.2. Non Bullous impetigo
    - 2.2. Folliculitis
        - 2.2.1. Furuncle
        - 2.2.2. Carbuncle
    - 2.3. Cellulitis & Erysipelas
    - 2.4. Leprosy
3. Superficial fungal infection of the skin
    - 3.1. Dermatophytes
        - T. capitis
        - T. corporis
        - T. pedis
        - T. versicolor

3.2. Candidiasis

3.3. Paronychia and Onychomycosis

4. Viral infections

4.1.Warts

4.2. Molloscum contagiosum

4.3. Herpes simplex infection and zoster

4.4. Genital herpes

5. Protozoal infections

5.1. Onchocerciasis

5.2. Leishmaniasis

6. Scabies

7. Eczemas

- Atopic dermatitis
- Seborric dermatitis
- Lichen planus chronicus

8. Acne vulgaris

9. Psoriasis

9. Common skin manifestation of HIV/AIDS

APPENDIX FIVE

EPHTI-II FINAL EVALUATION (AHOTP)

WORKSHEET FOR EVALUATION TEAM

EVALUATION QUESTIONS: IMPORTANCE, URGENCY AND FEASIBILITY

Key:

I = How <u>important</u> is it to answer this evaluation question (10 = extremely important; 1 = not at all important)?

U = How <u>urgent</u> is it to have an answer to this question by June 4? (10 = extremely urgent; 1 = not at all urgent)?

F = How <u>feasible</u> is it to answer this question by June 4? (10 = feasible; 1 = not at all feasible)?

QUESTION	*I*	*U*	*F*	*COMMENTS*
ADDITIONAL/PRELIMINARY QUESTIONS **(Note: Some of these are essential to test some of the critical assumptions that underpin the team's Scope of Work)**				
Is there a simple logic model that describes the project and that is understood in the same way by all stakeholders? 1.How widely has the model been disseminated? 2.How widely is the model understood?	10	10	10	In the absence of a clear and consistent logic model it will not be possible for the team to definitely answer many of the questions in the SOW.
How functional is the existing EPHTI-II M&E system? - What's already in place? - What's not in place? - Is information about quality incorporated into the M&E framework?	10	10	10	Our ability to fulfill our SOW in the allotted time will be dependent on this system being (a) comprehensive and (b) fully functional - and therefore capable of producing up-to-date answers to the team's questions (some of which may be posed "on the spot").
What analysis of data has already been done at: - Hospital level? - University level? - At FMOH and MOE? - At project level?	10	10	10	If analyses have already been done (and reports produced based on these analyses) it will be indicative that there is capability within the project to seek answers to our questions from within the databases that are part of the M&E system.
Do the existing analyses accurately describe the current project status in relation to each of the project objectives?	10	10	TBD	The answer to this question will be critical to our being quickly able to answer many of the questions in the SOW.

QUESTION	*I*	*U*	*F*	*COMMENTS*
Is the goal of 5,000 trained Health Officers by 2009 being consistently interpreted in the same way by all stakeholders? - Have there been changes along the way? - Is there agreement? - Have there been changes in the required balance between Health officers trained under the accelerated program and those trained under the generic program? If so, key stakeholders know of these changes? - Are all stakeholders in agreement re the desired balance?	10	10	TBD	If there is not a consistent interpretation of this question many of our questions will be subject to varying interpretations – and the answers given may not be based on a correct interpretation.
Are stakeholders in agreement re which project impacts need to be sustained and are there already strategies for sustaining these impacts?	10	10	TBD	Without agreement among all key stakeholders on this question, many of our questions will be subject to varying interpretations – and also our interpretations of the answers that are given to us may not be correct.
Are stakeholders in agreement re the appropriate "balance" between medical care, prevention and health promotion?	10	9	TBD	Ditto
Are stakeholders in agreement regarding the degree of emphasis to be placed on public health core competencies?	10	10	TBD	Ditto
Are all stakeholders in agreement regarding the potential role(s) of new technologies and new training approaches?	9	10	TBD	Ditto
In what ways is "verticalization" of inputs from related programs likely to affect (a) training and (b) post-training performance.	10	7	TBD	A pre-requirement to answering this important question will be clarity about the EPHTI-II inputs.
QUESTIONS IN THE SCOPE OF WORK				
Program Management:				
How effective has been the project's planning of strategy and interventions?	10	10	TBD	
How effective have been the program management by the EPHTI II Atlanta office? By the Ethiopia EPHTI II office? NB: This evaluation will not address financial management issues, which are being reviewed through alternate channels.	10	10	TBD	
What management processes are used by the EPHTI II project to identify problems and resolve them effectively?	9	9	TBD	
Has the EPHTI II field office adequately and appropriately used the resources of the Carter Center home office in Atlanta? How efficient and effective is home office supplied technical assistance in building capacity and improving overall program outcomes?	10	9	TBD	
[NB: This bullet will be deleted: How effectively have the EPHTI II financial systems and resources been used?]	N/A	N/A	N/A	
How effectively has the program structure and processes of EPHTI II been	10	9	TBD	

QUESTION	*I*	*U*	*F*	*COMMENTS*
integrated with the MOH and MOE program at national, regional, institutional and local levels?				
How responsive has EPHTI II been to the findings and recommendations of the EPHTI I end of project evaluation?	10	9	TBD	
Knowledge and skills of students that were acquired through the EPHTI-II project				
What level of knowledge have students acquired to provide clinical care for PHC services?	6	6	TBD	
What level of skills clinical competency do students have in the delivery of PHC services?	10	10	TBD	
What health management knowledge and skills have students acquired?	10	8	TBD	
Have regular, appropriate clinical skills assessments been done?	10	10	TBD	
Have their results been used to revise training curriculum, materials, and methodologies?	10	10	TBD	
What were the means used to assess clinical skills of students?	10	8		
Pre-Service Training Delivery -Quality of Training and Materials **Quality of training of faculty and clinical preceptors:**				
What is the quality and effectiveness of faculty and clinical preceptor training?	8	7	TBD	
How have new pedagogical methods and tools been used to improve faculties' and clinical preceptors' training and clinical preceptorship skills?	8	7	TBD	
How effectively do faculty and clinical preceptors use the new pedagogical tools and skills taught to them?	8	7	TBD	
Do faculty and clinical preceptors have the new tools needed to provide training and clinical skills develop (with practical "hands on" training) for students?	10	10	TBD	
Are there adequate numbers and continuity of faculty and clinical preceptors?	10	10	TBD	
What options have been used to address this issue?	10	10	TBD	
Were the training and clinical site preceptorships relevant and effective for improving the quality of pre-service training for students in the health science colleges and clinical training sites?	7	7	TBD	
Are new and appropriate pedagogical methods and quality hand-on clinical experiences being provided to students	7	7	TBD	
?[NB: Delete this bullet as it is redundant given other bullets in this section. How effective are the links between the classroom teaching and the clinical	N/A	N/A	N/A	

QUESTION	*I*	*U*	*F*	*COMMENTS*
cases students providing care in clinical settings?]				
How adequate is the balance between practical and theoretical training?	10	9	TBD	
Are classroom pedagogical methodologies and tools appropriate adequate and used for developing clinical skills of students?	9	9	TBD	
How effectively are students' clinical experiences planned and implemented to provide useful hands-on experience to improve clinical skills capacity?	10	10	TBD	
Do the program faculty use practical case studies that stimulate critical thinking?	10	10	TBD	
Are there regular assessments of student skills? If so, is skills assessment adequate and implemented consistently by all universities and/or clinical training sites?	10	10	TBD	
Is the training applicable to students' actual placement and do they have the skills they need?	10	10	TBD	
Is it plausible that this training will contribute to increased access to quality PHC services?	10	10	TBD	
Quality of training materials: For faculty and clinical preceptors				
Were the products/materials developed for faculty and preceptors evidence based and effective to improve their capacities?	8	8	TBD	
Were quality pedagogical training materials adequate in quality and amounts to support the development of faculty and clinical preceptors?	10	10	TBD	
Quality of training materials: For students				
For the pre-service student health training, are training and clinical preceptorship materials relevant, evidenced-based, and adequate for improving capacity of students?	10	10	TBD	
Were the quantity and quality of the training and support materials for clinical preceptorships produced appropriate, adequate, on time and evenly distributed?	10	9	TBD	
Are the training materials appropriate for EPHTI II objectives? If not, why not?	10	10	TBD	
Are the training materials being used effectively? If not, why?	10	10	TBD	
Quality of training sites: For faculty and preceptors:				
Were selected facilities used to strengthen faculty and preceptor skills?	10	10	TBD	
Was there adequate equipment for faculty pedagogical and clinical preceptorship skills development?	10	10	TBD	
Quality of Training Sites: For students:				

QUESTION	*I*	*U*	*F*	*COMMENTS*
How appropriate and adequate are the facilities for effective training?	10	7	TBD	
Do the facilities have the needed equipment and supplies?	10	7	TBD	
Capacity Building at universities, hospitals and health centers				
Were the overall objectives to strengthen and accelerate pre-service training of health professionals (in particular Health Officers) in universities, hospitals, and health centers met? If not, why not?	10	10	TBD	
Sustainability:				
What plans has the EPHTI II management made to assist partners to sustain activities?	10	10	TBD	
Have strategies been developed to address the rapid turnover of university instructors? If so, what it the prospect for reducing the turnover?	10	10	TBD	
What plans been developed by Universities and other implementing partners to sustain activities, such as the purchase of textbooks and other materials, beyond the life of the cooperative agreement?	8	5	TBD	
Has a mechanism been developed to update and reproduce learning materials beyond the life of the project?	8	5	TBD	
How effectively have these plans been implemented?	N/A	N/A	TBD	
Monitoring and Evaluation (M&E)				
How effectively has the EPHTI II monitored program quality and effectiveness?	10	10	TBD	
Are the M&E system and indicators appropriate and has the system been implemented effectively?	10	10	TBD	
How has the EPHTI II used the M&E results to manage program interventions?	10	10	TBD	
Is the M&E system used to capture the increase in facility and student's capacity as well as documentation of outputs and deliverables?	10	10		
Impact				
In view of the fact that the EPHTI II program is only in its third year and as yet no Health Officer students have completed their training, this evaluation will not attempt to assess whether EPHTI II program has had any measurable impact on health status: child mortality, improved maternal health, HIV/AIDS, and malaria. However, the evaluation team should comment on the plausibility of the EPHTI II program eventually having an impact these MOH MDG goals. Have changes in any key underlying conditions during the implementation of the project, such as staff turnover and stakeholder involvement, positively or negativly influenced the program's prospects to achieve its goals and objectives?	10	10	TBD	
Lessons Learned				
What positive (and negative) lessons from this program can inform new follow-on program development?	10	10	TBD	

QUESTION	*I*	*U*	*F*	*COMMENTS*
Identify successful interventions that merit continuation or replication, better practices, significant products and tools from the EPHTI II for possible dissemination and replication.	10	7	TBD	

APPENDIX SIX

Tables Included in Report of EPHTI-II Status as of May 15, 2008

Extract from Report Provided by the Carter Center's EPHTI-II Office

(with corrected calculations highlighted)

Note: The ordering of some of the cells has also been changed from the original – so that ordering is consistent between tables.

Table I: HO Training Universities, the Affiliated Teaching Hospitals & RHBs

S.N	University	Affiliated Training Hospitals	Region	Remarks
1	Mekelle (MU)	Axum, Adegrat & Michew	Tigray	---
2	Gondar (UoG)	Debremaridos, Dessie, Debrebirhan & Felegehiwot	Amhara	---
3	Jimma (JU)	Nekemti, Metu & St. Luke Catholic [Waliso]	Oromiya	---
4	Haramaya (HRU)	Adama, Assela & Chiro	Oromiya	---
		Karamara	Somali	---
		Hiwotfana	Harari	---
		Dilchora	Diredawa	---
5	Hawassa (HWU)	Yiragalem, Sodo, Arbaminch, Hosina & Butajira	SNNP	---

Table II. Summary of Current AHOTP Student Population by University, Type and Years of Training [May 2008]

Univ.	**AHOTP Post Basic Trainees**				**AHOTP Generic Trainees**				**Total PBs & Gen.**	**Number Graduated**			**G/d Total**
	Yr I	**Yr II**	**Yr III**	**Tot.**	**Yr I**	**Yr II**	**Yr III**	**Tot.**		**PBs**	**Gen.**	**Tot.**	
HRU	245	208	194	647	112	195	193	500	1147	-	270	270	1417
MU	130	96	107	333	-	13	18	31	364	63	27	90	454
HWU	305	210	265	780	87	81	111	279	1059	92	173	265	1324
JU	179	168	167	514	129	134	133	396	916	68	70	138	1054
UoG	240	199	204	643	102	102	103	307	950	116	163	279	1229
Total	**1099**	**881**	**937**	**2917**	**430**	**525**	**558**	**1513**	**4436**	**339**	**703**	**1042**	**5478**

Table provided in May 16 summary

	Post Basic (PB)	**Generic**	**Total**

	Yr I	Yr II	Yr III*	Tot.	Yr I	Yr II	Yr III	Tot.	
Haramaya	247	207	193	**647**	112	195	193	500	**1,147**
Hawassa	305	220	266	**791**	83	82	110	275	**1,059**
Jimma	179	169	167	**515**	139	130	133	402	**917**
Mekelle	132	96	107	**335**	-	13	18	31	**366**
UoG	240	199	203	**642**	102	101	103	306	**948**
Total	**1,103**	**891**	**936**	**2,930**	**436**	**521**	**557**	**1,514**	**4,444**

*Final Year Students

Table III: Summary of Current AHOTP PB Student Population by Region **of Recruitment, Level of Training & Gender:**

Univ.	Region	Year I			Year II			Year III			Grand Total
		Male	Fem.	Total	Male	Fem.	Total	Male	Fem.	Total	
HRU	Oromiya	123	59	182	122	48	170	125	38	163	515
	Somali	38	7	45	24	5	29	8	2	10	84
	Harari	11	2	13	2	3	5	12	2	14	32
	Diredawa	5	--	5	4	--	4	7	0	7	16
	Total	177	68	245	152	56	208	152	42	194	647
MU	Tigray	53	8	61	25	11	36	43	14	57	154
	Benish.	22	5	27	25	4	29	14	4	18	74
	Gambella	18	3	21	17	1	18	12	2	14	53
	Afar	20	1	21	13	--	13	13	5	18	52
	Total	113	17	130	80	16	96	82	25	107	333
JU	Oromiya	106	73	179	133	35	168	136	31	167	514
HWU	SNNP	238	67	305	165	45	210	210	64	265	780
UoG	Amhara	---	---	240	147	52	199	163	41	204	643
	G/Total	---	---	**1099**	---	---	**881**	---	---	**937**	**2917**

Table IV: Year II & III HO Student [PBs & Generic] Currently Taking Training at AHOPT Hospitals [May 2008]:

S. No.	Hospital	Post Basic Students			Generic Students			Grand Total
		Year II	Year III	Tot.	Year II	Year III	Tot.	
1	Assela	61	60	121	---	---	---	121
2	Adama	68	66	134	---	---	---	134
3	Chiro	35	37	72	---	---	---	72
4	Hiwotfana	13	14	27	76	63	139	166
5	Dilchora	6	7	13	59	59	119	131
6	Karamara	25	10	35	---	---	---	35
7	Yirgalem		57		---	---	---	
8	Soddo		44		---	---	---	
9	Arbaminch		55	265	---	---	---	265
10	Hosaina		56		---	---	---	
11	Butajira		53		---	---	---	
12	Adigrat	43	54	97	13	9	22	119
13	Axum	53	53	106	---	9	9	115
14	Michew	---	---	---	---	---	---	---
15	St. Luke	56	55	111	---	---	---	111
16	Nekempte	59	57	116	---	---	---	116
17	Metu Karl	53	55	108	---	---	---	108
18	Debrebirhan		37	204	---	---	---	204

19	Dessie		60		---	---	---	
20	Debremarikos		43		---	---	---	
21	Felegehiwot		64		---	---	---	
--	Total	472	937	1409	148	140	288	1697

Table V: AHOTP Hospital Based Teaching Staff [May2008]:

S.No	Hospital	Surgeon	Gynecol.	Pediatr.	Intern.	GP	Total
1	St Luke	4	1	--	1	2	8
2	Nekempte	1	1	1	--	6	9
3	Assela	3	2	--	1	4	10
4	Metu Karl	1	1	--	--	5	7
5	Adama	4	3	2	1	13	23
6	Chiro	1	--	--	--	7	8
7	Yirgalem	2	2	1	--	13	18
8	Soddo	1	--	--	--	7	8
9	Arbaminch	1	1	--	--	8	10
10	Hosaina	1	1	--	--	11	13
11	Butajira	2	1	--	--	9	12
12	Debremarikos	2	2	--	--	10	14
13	Felegehiwot	2	3	2	1	14	22
14	Dessie	3	3	3	1	11	21
15	Debrebirhan	1	1	1	--	8	11
16	Hiwotfana	1	1	1	1	5	9
17	Dilchora	2	2	1	2	4	11
18	Karamara	2	2	2	1	--	7
19	Axum	1	--	--	1	2	4
20	Adigrat	1	1	--	1	2	5
21	Michew	1	--	--	--	1	2
	Total	37	28	14	11	142	232

Table VI: AHOTP Hospitals Renovated for Facilitation of the Training Program

Hospital	Classroom	Library	Lab.	Store	Latrine	Remarks
Assela	X	---	---	X	---	---
Adama	X	X	---	---	---	---

Chiro	X	X	X	---	---	---
Hiwotfana	X	X	---	---	---	---
Karamara	X	X	---	---	---	---
Yirgalem	X	---	---	---	---	---
Soddo	X	X	---	---	---	---
Arbaminch	X	---	---	---	---	---
Hosaina	X	X	---	---	---	---
Butajira	X	X	---	---	---	---
Adigrat	X	X	X	---	X	---
Axum	X	X	---	---	X	---
St Luke	X	---	---	---	---	Expansion of Classroom
Nekempte	---	---	X	---	---	
Felegehiwot	X	X	---	---	---	
Dessie	X	X	---	---	X	
Debremarikos	---	X	X	X	---	
Debrebirhan	X	X	---	---	---	

Appendix Seven

EPHTI-II EVALUATION – REVISED FINAL SCHEDULE (5/30)

MON 5/12	*TUES 5/13*	*WED 5/14*	*THURS 5/15*	*FRI 5/16*	*SAT 5/17*	*SUN 5/18*
a.m.	**a.m.** 11 a.m. Team leader arrives 12 – 2:30 Team Meeting	**a.m.** 8:30 Introductory Meetings and Team Planning	**a.m.** Meetings at Carter Center 11:00 Preparation of Work Plan	**a.m.** 8:30 Team Planning (inc. clarification of roles) 10:00 Meeting with AHOTP Council	**a.m.** 10:00 – 12 - 00 Team Planning (instrument Design	**a.m.** 10:00 Team Meeting (Clarification of roles - and reporting responsibilities)
p.m.	**p.m.** 3 p.m. Initial briefing at USAID	**p.m.** Team Planning	**p.m.** 2:30 p.m. Presentation of Work Plan at USAID	**p.m.** 3 p .m. Meeting with State Minister of Health (cancelled) 3:30 Key documents from FMOH	**p.m.** 3 p.m. Team Meeting (Logistics) 4 – 6 p.m. Logistical Preparations	**p.m.** 12:00 Team departs by road for Waliso 4 p.m. Tam arrives in
MON 5/19	***TUES 5/20***	***WED 5/21***	***THURS 5/22***	***FRI 5/23***	***SAT 5/24***	***SUN 5/25***
a.m. 10:00 Introductory meetings and visits to health post and health center.	**a.m.** 6 a.m. TM & depart for Jimma RL & SJ continue fieldwork in Owiso.	**a.m.** Fieldwork in Jimma (TM & DF) Fieldwork in Woliso (RL&SJ).	**a.m.** TM & DF depart Jimma by road.	**a.m.** Team Meeting (Finalization of instruments).	**a.m.** Meetings with Carter Center leadership.	**a.m.** 10:00 Team Departs for Makelle
p.m. Fieldwork in Jimma 8 p.m. Team Meeting	**p.m.** Field work in Jimma (TM & LD) Fieldwork in Owiso (RL & SJ)	**p.m.**	**p.m.** Noon Team departs for Addis by road	**p.m.** 2 p.m. Carter Center	**p.m.** Preparations for Makelle and Dire Dawa visits	**p.m.**
MON 5/26	***TUES 5/27***	***WED 5/28***	***THURS 5/29***	***FRI 5/30***	***SAT 5/31***	***SUN 6/1***
a.m. Fieldwork in Makelle (full team)	***a.m.*** Fieldwork in Makelle (full team)	***a.m.*** Team returns from Makelle	***a.m.*** Data analysis (full team)	***a.m.*** TM&DF (Data and Management) in Addis	***a.m.*** *DATA ANALYSIS* *AND REPORT WRITING*	***a.m.*** *DATA ANALYSIS* *AND REPORT WRITING*

p.m. *Fieldwork in Makelle (full team)*	***p.m.*** Fieldwork in Makelle (full team)	***p.m.*** Data analysis (full team)	*p.m.* RL&SJ depart for Dire Dawa TM&DF (Data and Management) in Addis	*p.m.* RL&SJ Fieldwork in Dire Dawa 2:30 Meetings at Carter Center re (A0 management and (b) M&E	*p.m.* DATA ANALYSIS AND REPORT WRITING	*p.m.* Dire Dawa team returns 8 p.m. Team Meeting
MON 6/2	***TUES 6/3***	***WED 6/4***	***THURS 6/5***			
a.m. 8:00 Debriefing at USAID 10:00 Meeting at Ethiopia Public Health Association.	***a.m.*** *8:00 Team Meeting* *10:00 Meeting at Carter Center* *REPORT WRITING*	*a.m.* *REPORT WRITING*	***a.m.*** Team leader departs	***a.m.***	***a.m.***	***a.m.***
p.m. *REPORT WRITING* 5:00 Conference call with Carter Center (Atlanta)	***p.m.*** 3:00 – 4:30 p.m. Final meeting with Addis-based stakeholders – Hotel Desalegn # 3 (Bole).	*p.m.* 4:30 Final meeting at USAID 5:30 .Meeting with Hon. Minister of Health and State Minister 7::30 p.m. Submission of draft report (Executive Summary) to USAID.	***p.m.***	***p.m.***	***p.m.***	

Appendix Eight

PRELIMINARY ANALYSIS OF STUDENT SURVEY

Background Characteristics of respondents

	N	%
Age		
less than 25	129	26.7
25-39	315	65.1
40 and above	40	8.3
Total	484	100.0
System Missing	26	
Total	510	
Sex		
Male	407	81.1
Female	95	18.9
Total	502	100.0
System Missing	8	
Total	510	
Region		
Tigray	199	39.0
Oromia	159	31.2
SNNP	75	14.7
Harari	77	15.1
Total	510	100.0
Type of training		
Generic	126	25.5
Post Basic	368	74.5
Total	494	100.0
System Missing	16	
Total	510	
Current year of study		
Year II	140	28.4
year III	353	71.6
Total	493	100.0
System Missing	17	
Total	510	
Years of basic nursing service		
1-3	121	31.4
4-6	145	37.7
7-10	62	16.1
11-15	26	6.8
more than 15	31	8.1
Total	385	100.0
System Missing	125	
Total	510	

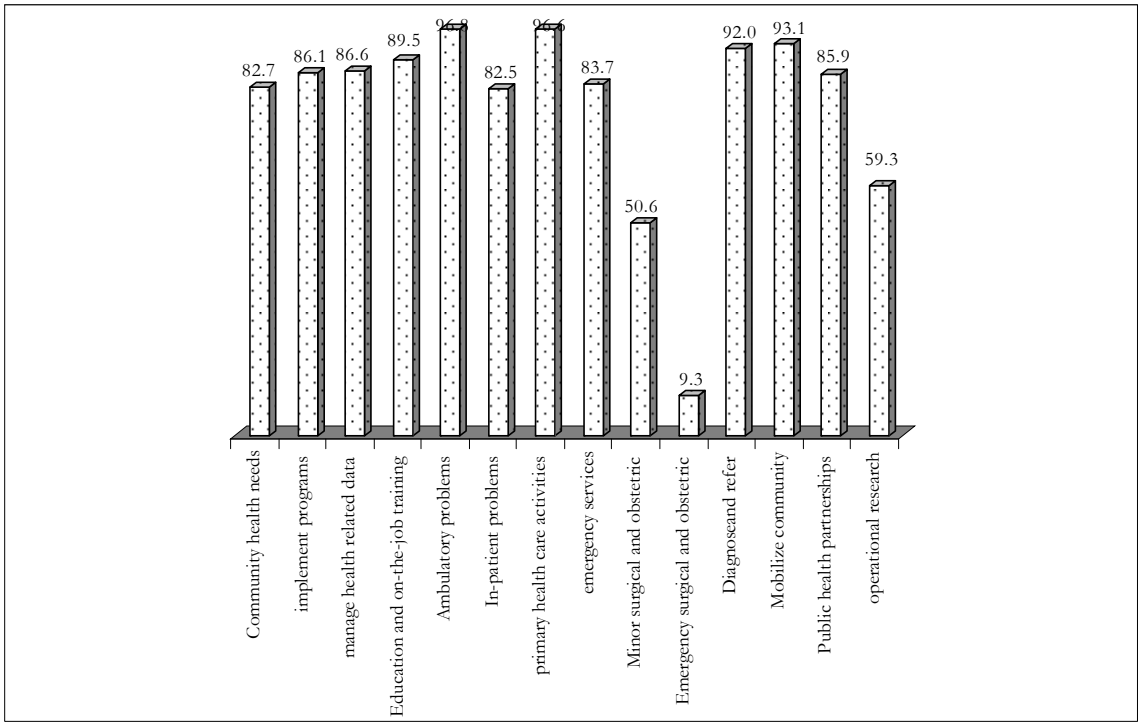
Students by Region

Region	Percent	Valid Percent	Cumulative Percent
Tigray	39.0	39.0	39.0
Oromia	31.2	31.2	70.2
SNNP	14.7	14.7	84.9
Harari	15.1	15.1	100.0
Total	100.0	100.0	

Type of training students attending by region

	Type of Health Officer Training		
	Generic	Post Basic	Total
Tigray	31(24.6%)	163(44.3%)	194(39.3%)
Oromia	2(1.6%)	149(40.5%)	151(30.6%)
SNNP	30(23.8%)	43(11.7%)	73(14.8%)
Harari	63(50.0%)	13(3.5%)	76(15.4%)
Total	126(100.0%)	368(100.0%)	494(100.0%)

Affirmative response for section B by bar graph



Section B by Region

	Region				Total	Significance (χ^2 and P-value)
	Tigray		SNNP	Harari		
Have all the skills and competencies needed to assess community health needs	164 84.1%	131 82.9%	49 66.2%	71 94.7%	415 82.7%	22.2 0.000 **
Have all the skills and competencies needed to plan, organize, direct and evaluate programs at various levels	167 86.5%	143 92.3%	53 72.6%	65 85.5%	428 86.1%	18.81 0.004 **
Have all the skills and competencies needed to collect, document, process and analyze health and health related data from health institutions, communities and other sources.	168 87.0%	142 89.9%	54 73.0%	69 92.0%	433 86.6%	18.17 0.006**
Have all the skills and competencies needed to conduct or coordinate continuing education and on-the-job training	174 91.1%	143 90.5%	61 83.6%	67 89.3%	445 89.5%	4.00 0.676
Have all the skills and competencies needed to manage common ambulatory problems	195 99.0%	148 94.3%	72 97.3%	73 96.1%	488 96.8%	6.5 0.088
Have all the skills and competencies needed to manage in-patient problems	164 86.8%	117 75.0%	61 83.6%	64 86.5%	406 82.5%	9.34 0.025 **
Have all the skills and competencies needed to implement comprehensive primary health care activities	192 98.0%	152 96.8%	65 92.9%	73 96.1%	482 96.6%	4.17 0.244
Have all the skills and competencies needed to organize and lead teams to prevent and control disaster and emergency situations	171 88.1%	128 84.8%	53 74.6%	58 78.4%	410 83.7%	14.69 0.024 **
Have all the skills and competencies needed to perform minor surgical and obstetric procedures	95 51.4%	70 46.1%	39 55.7%	39 53.4%	243 50.6%	8.43 0.208
Have all the skills and competencies needed to perform common emergency surgical and obstetric procedures	23 11.9%	7 4.5%	4 5.6%	12 16.4%	46 9.3%	12.69 0.048 **
Have all the skills and competencies needed to diagnose and refer difficult cases	187 95.9%	135 86.5%	62 88.6%	73 96.1%	457 92.0%	14.51 0.024 **
Have all the skills and competencies needed to mobilize communities for health action	182 93.8%	147 94.2%	59 88.1%	69 93.2%	457 93.1%	12.83 0.046 **
Have all the skills and competencies needed to promote, and be engaged in, local public health partnerships with institutions	156 84.8%	133 88.7%	50 75.8%	69 92.0%	408 85.9%	17.85 0.007 **
Have all the skills and competencies needed to undertake essential operational research	116 62.4%	76 53.9%	29 44.6%	54 75.0%	275 59.3%	19.46 0.003 **

*** Statistically significant association between Region and skill & competencies*

Section B by Type of Training

	Type of training		Total	Significance (χ^2 and P-value)
	Generic	Post Basic		
Have all the skills and competencies needed to assess community health needs	98 79.7%	307 84.3%	405 83.2%	1.74 0.419
Have all the skills and competencies needed to plan, organize, direct and evaluate programs at various levels	99 79.8%	314 88.0%	413 85.9%	6.38 0.041 **
Have all the skills and competencies needed to collect, document, process and analyze health and health related data from health institutions, communities and other sources.	103 83.7%	316 87.5%	419 86.6%	3.26 0.195
Have all the skills and competencies needed to conduct or coordinate continuing education and on-the-job training	100 82.6%	332 92.0%	432 89.6%	8.61 0.013**
Have all the skills and competencies needed to manage common ambulatory problems	119 96.0%	354 97.3%	473 96.9%	0.513 0.474
Have all the skills and competencies needed to manage in-patient problems	98 79.7%	295 83.3%	393 82.4%	0.842 0.359
Have all the skills and competencies needed to implement comprehensive primary health care activities	116 94.3%	351 97.2%	467 96.5%	2.31 0.129
Have all the skills and competencies needed to organize and lead teams to prevent and control disaster and emergency situations	93 76.2%	303 86.1%	396 83.5%	7.04 0.03**
Have all the skills and competencies needed to perform minor surgical and obstetric procedures	59 50.9%	179 51.3%	238 51.2%	0.269 0.874
Have all the skills and competencies needed to perform common emergency surgical and obstetric procedures	19 15.7%	25 7.0%	44 9.2%	9.9 0.007**
Have all the skills and competencies needed to diagnose and refer difficult cases	114 94.2%	329 91.4%	443 92.1%	3.36 0.186
Have all the skills and competencies needed to mobilize communities for health action	110 92.4%	333 93.3%	443 93.1%	0.241 0.886
Have all the skills and competencies needed to promote, and be engaged in, local public health partnerships with institutions	100 82.0%	295 86.8%	395 85.5%	3.63 0.163
Have all the skills and competencies needed to undertake essential operational research	76 64.4%	194 57.7%	270 59.5%	1.61 0.445

*** Statistically significant association between type of training and skill & competencies*

Section C by Region

	Region				Total	Statistical Significance (χ^2 and P-value)
	Tigray	Oromia	SNNP	Harari		
Classrooms for basic sciences training.	175 88.8%	125 82.2%	57 80.3%	37 56.9%	394 81.2%	32.8 0.000**
If yes, are they adequate for your training needs	97 61.4%	65 58.3%	33 67.3%	17 41.5%	212 59.0%	7.0 0.071
Have Computers	56 31.3%	66 44.3%	21 30.9%	18 26.1%	161 34.6%	9.68 0.021**
Computers are adequate	23 40.4%	6 9.2%	4 18.2%	5 26.3%	39 23.3%	16.8 0.001**
Computer Software	30 16.8%	27 19.1%	7 10.4%	8 11.4%	72 15.8%	3.76 0.288
Internet access	11 5.9%	24 16.4%	3 4.2%	6 8.0%	44 9.2%	13.7 0.003**
LCD Projector	102 55.7%	78 52.7%	29 40.8%	21 28.8%	230 48.4%	17.9 0.000**
Overhead projector	181 93.3%	139 90.3%	59 81.9%	44 58.7%	423 85.5%	56.4 0.000**
Spare Parts (e.g. bulb)	34 21.4%	30 27.0%	17 27.9%	20 28.6%	101 25.2%	2.07 0.556
Library	162 86.6%	75 50.0%	46 63.0%	48 66.7%	331 68.7%	53.5 0.000**
Library is adequate	70 50.7%	19 26%	18 51.4%	20 47.6%	127 44.1%	13.1 0.004**
Laboratories	51 31.1%	43 30.7%	25 37.3%	23 33.8%	142 32.3%	1.11 0.775
Laboratories are adequate	27 40.9%	12 30%	11 44%	10 38.5%	60 38.2%	1.7 0.63
Text books	152 89.4%	99 68.8%	57 86.4%	54 80.6%	362 81.0%	23.08 0.000**
Text books are adequate	111 70.7%	31 31%	30 54.4%	28 52.8.4 %	200 54.8%	38.9 0.000**
Modules	123 69.9%	44 31.9%	30 50.8%	36 53.7%	233 53.0%	44.96 0.000**
Modules are adequate	80 66.1%	19 39.6%	16 42.1%	21 52.5%	136 55.1%	13.3 0.004**
Lecture Notes	159 87.4%	133 91.7%	62 92.5%	59 86.8%	413 89.4%	2.81 0.421
Lesson Notes are adequate	121 78.6%	70 54.7%	36 62.1%	43 68.3%	270 67%	18.7 0.000**
Others, models, manuals and lecture notes	121 69.5%	58 40.0%	31 44.3%	40 57.1%	250 54.5%	31.3 0.000**
Basic consumables and other supplies (e.g. gowns, gloves, bandages, percussion hammer, X-rays et	52 31.5%	67 45.0%	30 42.9%	28 40.0%	177 39.0%	6.58 0.086

*** Statistically significant association between Region and facilities*

Section C by Type of Training

	Type of Course	Total	Statistical

	Generic	Post Basic		Significance (χ^2 and P-value)
Classrooms for basic sciences training.	83 72.2%	299 83.8%	382 80.9%	7.56 0.006**
If yes, are they adequate for your training needs	42 51.2%	162 61.4%	204 59%	2.66 0.103
Have Computers	27 24.1%	128 37.6%	155 34.3%	6.85 0.009**
Computers are adequate	10 32.3%	28 22.2%	38 24.2%	1.36 0.243
Computer Software	13 11.4%	57 17.3%	70 15.8%	2.19 0.138
Internet access	10 8.2%	33 9.6%	43 9.2%	0.218 0.641
LCD Projector	42 35.3%	185 53.6%	227 48.9%	11.89 0.001**
Overhead projector	86 69.9%	323 90.2%	409 85.0%	29.65 0.000**
Spare Parts (e.g bulb)	30 26.3%	70 25.3%	100 25.6%	0.046 0.83
Library	88 72.7%	233 67.0%	321 68.4%	1.38 0.239
Library is adequate	43 58.9%	82 39.6%	125 44.6%	8.12 0.004**
Laboratories	42 38.5%	96 30.3%	138 32.4%	2.52 0.112
Laboratories are adequate	21 43.8%	37 34.9%	58 37.7%	1.1 0.294
Text books	98 86.0%	251 78.7%	349 80.6%	2.64 0.091
Text books are adequate	58 62.4%	139 53.1%	197 55.5%	2.4 0.121
Modules	64 57.1%	162 51.6%	226 53.1%	1.01 0.312
Modules are adequate	38 57.6%	96 54.9%	134 55.6%	0.143 0.705
Lecture Notes	102 87.9%	298 89.5%	400 89.1%	0.215 0.643
Lesson Notes are adequate	77 75.5%	189 65.5%	266 68%	3.53 0.06
Others, models, manuals and lecture notes	67 59.3%	177 53.2%	244 54.7%	1.28 0.257
Basic consumables and other supplies (e.g. gowns, gloves, bandages, percussion hammer, X-rays et	56 49.6%	113 34.6%	169 38.4%	7.99 0.005**

*** Statistically significant association between type of training and facilities*

Section D by Region

	Region	Total	Statistical

	Tigray	Oromia	SNNP	Harari		Significance (χ^2 and P-value)
Basic sciences instructors	120	42	38	34	234	33.4
	65.2%	34.1%	54.3%	69.4%	54.9%	0.000**
General practitioners	139	103	54	57	353	2.16
	73.2%	70.1%	75.0%	79.2%	73.4%	0.54
Surgeons	169	115	49	49	382	20.56
	87.1%	76.7%	68.1%	65.3%	77.8%	0.000**
Ob/Gyn specialists	96	125	56	46	323	46.92
	50.3%	83.9%	76.7%	61.3%	66.2%	0.000**
Internists	172	21	23	46	262	196.2
	88.7%	14.8%	32.9%	61.3%	54.5%	0.000**
Nurse	118	104	55	48	325	3.94
	67.8%	74.8%	77.5%	66.7%	71.3%	0.267
Pediatricians	13	40	19	45	117	82.3
	7.2%	27.6%	26.4%	60.8%	24.8%	0.000**
Public health Specialists	44	7	17	22	90	29.3
	24.7%	4.9%	23.3%	31.0%	19.4%	0.000**
Supervisors, managers and administrators	96	61	26	45	228	10.75
	52.5%	44.2%	37.1%	61.6%	49.1%	0.013**

*** Statistically significant association between Region and instructors*

Section D by Type of Training

	Type of training		Total	Statistical Significance (χ^2 and P-value)
	Generic	Post Basic		
Basic sciences instructors	71	158	229	15.13
	72.4%	50.2%	55.4%	0.000**
General practitioners	91	252	343	1.09
	77.1%	72.2%	73.4%	0.296
Surgeons	82	289	371	9.16
	67.8%	81.4%	77.9%	0.002**
Ob/Gyn specialists	85	229	314	0.551
	69.1%	65.4%	66.4%	0.458
Internists	89	167	256	21.66
	73.0%	48.5%	54.9%	0.000**
Nurse	91	225	316	2.36
	77.1%	69.7%	71.7%	0.124
Pediatricians	62	51	113	62.15
	51.2%	15.2%	24.7%	0.000**
Public health Specialists	37	51	88	14.15
	31.4%	15.4%	19.6%	0.000**
Supervisors, managers and administrators	73	147	220	8.67
	60.3%	44.7%	48.9%	0.003**

*** Statistically significant association between type of training and instructors*

Comparison of students and coordinators/instructors on Section B

	Students	Coordinators	Z_{cal}

	N	%	N	%	
Have all the skills and competencies needed to assess community health needs	415	82.7	35	85.4	0.44
Have all the skills and competencies needed to plan, organize, direct and evaluate programs at various levels	428	86.1	35	89.7	0.64
Have all the skills and competencies needed to collect, document, process and analyze health and health related data from health institutions, communities and other sources.	433	86.6	35	89.7	0.56
Have all the skills and competencies needed to conduct or coordinate continuing education and on-the-job training	445	89.5	36	92.3	0.55
Have all the skills and competencies needed to manage common ambulatory problems	488	96.8	37	100.0	1.10
Have all the skills and competencies needed to manage in-patient problems	406	82.5	33	82.5	0.00
Have all the skills and competencies needed to implement comprehensive primary health care activities	482	96.6			
Have all the skills and competencies needed to organize and lead teams to prevent and control disaster and emergency situations	410	83.7	33	86.8	0.51
Have all the skills and competencies needed to perform minor surgical and obstetric procedures	243	50.6	18	64.3	1.41
Have all the skills and competencies needed to perform common emergency surgical and obstetric procedures	46	9.3	0	0.0	
Have all the skills and competencies needed to diagnose and refer difficult cases	457	92.0	36	92.3	0.07
Have all the skills and competencies needed to mobilize communities for health action	457	93.1	39	97.5	1.08
Have all the skills and competencies needed to promote, and be engaged in, local public health partnerships with institutions	408	85.9	35	94.6	1.49
Have all the skills and competencies needed to undertake essential operational research	275	59.3	26	70.3	1.32

**** ($Z_{cal} > Z_{\alpha/2(0.025)}$=1.96) The variations between the proportions (Coordinators and students) is statistically significant at 5% level of significance.**

Comparison of students and coordinators/instructors on Section C

	Students		Coordinators		Statistical Significant (Z_{cal})
	N	%	N	%	

Classrooms for basic sciences training.	394	81.2	37	86.0	0.78
If yes, are they adequate for your training needs	210	59.0	19	61.3	0.25
Have Computers	161	34.6	24	60.0	3.20**
Computers are adequate	38	23.3	8	26.7	0.40
Computer Software	72	15.8	9	23.7	1.27
Internet access	44	9.2	3	8.6	0.13
LCD Projector	230	48.4	36	81.8	4.24**
Overhead projector	423	85.5	38	90.5	0.90
Spare Parts (e.g bulb)	101	25.2	11	31.4	0.81
Library	331	68.7	38	84.4	2.21**
Library is adequate	127	44.1	15	44.1	0.00
Laboratories	142	32.3	26	61.9	3.84**
Laboratories are adequate	60	38.2	8	28.6	0.97
Text books	362	81.0	41	95.3	2.35**
Text books are adequate	200	54.8	17	44.7	1.18
Modules	233	53.0	28	71.8	2.26**
Modules are adequate	136	55.1	17	63.0	0.78
Lecture Notes	413	89.4	40	95.2	1.20
Lesson Notes are adequate	270	67.0	28	68.3	0.17
Others, models, manuals and lecture notes	250	54.5	27	67.5	1.59
Basic consumables and other supplies	177	39.0	25	59.5	2.59**

**** ($Z_{cal} > Z_{\alpha/2(0.025)}$=1.96) The variations between the proportions (Coordinators and students) is statistically significant at 5% level of significance.**

Comparison of students and coordinators/instructors on Section D

	Students		Coordinators		Statistical Significant (Z_{cal})
	N	%	N	%	
Basic sciences instructors	234	54.9	11	44.0	1.07
General practitioners	353	73.4	23	59.0	1.93
Surgeons	382	77.8	23	62.2	2.17**
Ob/Gyn specialists	323	66.2	20	54.1	1.50
Internists	262	54.5	10	26.3	3.35**
Nurses	325	71.3	28	84.8	1.68
Pediatricians	117	24.8	7	19.4	0.72
Public health specialists	90	19.4	11	28.9	1.42
Supervisors, managers and administrators	228	49.1	18	51.4	0.26

**** ($Z_{cal} > Z_{\alpha/2(0.025)}$=1.96). The variations between the proportions (Coordinators and students) is statistically significant at 5% level of significance.**

PRELIMINARY ANALYSIS OF INSTRUCTOR/COORDINATOR SURVEY

Background Characteristics of respondents

	N	%
Sex		
Male	42	91.3
female	4	8.7
Total	46	100.0
Region		
Tigray	10	21.7
Oromia	15	32.6
SNNP	16	34.8
Harari	5	10.9
Total	46	100.0
Role		
Coordinators	9	19.6
Instructors	32	69.6
Both	5	10.9
Total	46	100.0
Profession		
Gen. Practitioner	24	57.1
Internist	2	4.8
Obs/Gyn	2	4.8
Public health specialist	6	14.3
Surgeon	6	14.3
Others	2	4.8
Total	42	100.0
System	4	
Total	46	
Role for students of		
post basic only	23	51.1
Generic only	4	8.9
Post basic and generic	18	40.0
Total	45	100.0
System	1	
Total	46	

Coordinators/instructors role by regions

	Region				
	Tigray	Oromia	SNNP	Harari	Total
Coordinators	2(20.0%)	3(20.0%)	3(18.8%)	1(20.0%)	9(19.6%)
Instructors	7(70.0%)	11(73.3%)	11(68.8%)	3(60.0%)	32(69.6%)
Both	1(10.0%)	1(6.7%)	2(12.5%)	1(20.0%)	5(10.9%)
Total	10(100.0%)	15(100.0%)	16(100.0%)	5(100.0%)	46(100.0%)

Section B by Region

	Region				
	Tigray	Oromia	SNNP	Harari	Total
Students will have all the skills and competencies needed to assess community health needs	9	9	12	5	35
	100.0%	75.0%	80.0%	100.0%	85.4%
Students will have all the skills and competencies needed to plan, organize, direct and evaluate programs at various levels	9	10	11	5	35
	100.0%	90.9%	78.6%	100.0%	89.7%
Students will have all the skills and competencies needed to collect, document, process and analyze health and health related data from health institutions.	9	11	10	5	35
	100.0%	91.7%	76.9%	100.0%	89.7%
Students have all the skills and competencies needed to conduct or coordinate continuing education and on-the-job training	9	10	13	4	36
	100.0%	90.9%	92.9%	80.0%	92.3%
Students will have all the skills and competencies needed to manage common ambulatory problems	4	14	14	5	37
	100.0%	100.0%	100.0%	100.0%	100.0%
Students will have the skills and competencies needed to manage in-patient problems	4	13	12	4	33
	80.0%	92.9%	75.0%	80.0%	82.5%
Students will have all the skills and competencies needed to organize and lead teams to prevent and control disaster and emergency situations	8	12	10	3	33
	100.0%	100.0%	71.4%	75.0%	86.8%
Students will have all the skills and competencies needed to perform minor surgical and obstetric procedures	2	11	4	1	18
	66.7%	84.6%	44.4%	33.3%	64.3%
	0.0%	0.0%	0.0%	0.0%	0.0%
students will have skills and competencies needed to diagnose refer difficult cases	4	13	15	4	36
	80.0%	92.9%	100.0%	80.0%	92.3%
Students will have all the skills and competencies needed to mobilize communities for health action	9	11	14	5	39
	100.0%	91.7%	100.0%	100.0%	97.5%
Students will have all the skills and competencies needed to promote, and be engaged in, local public health partnerships	8	10	13	4	35
	100.0%	100.0%	92.9%	80.0%	94.6%
Students will have all the skills and competencies needed to undertake essential operational research	8	8	6	4	26
	100.0%	61.5%	50.0%	100.0%	70.3%

Section C by Region

	Region				
	Tigray	Oromia	SNNP	Harari	Total
Classrooms for basic sciences training.	8	11	13	5	37
	88.9%	78.6%	86.7%	100.0%	86.0%
If yes, are they adequate for your training needs?	4	8	5	2	19
	50.0%	80.0%	55.6%	50.0%	61.3%
Computers	8	4	9	3	24
	88.9%	33.3%	64.3%	60.0%	60.0%
If yes, are they adequate for your training needs?	2	3	2	1	8
	28.6%	37.5%	18.2%	25.0%	26.7%
Computer software	3	3	2	1	9
	37.5%	23.1%	16.7%	20.0%	23.7%
Internet access	0	2	1	0	3
	0.0%	20.0%	7.1%	0.0%	8.6%
LCD projector	8	13	11	4	36
	88.9%	86.7%	73.3%	80.0%	81.8%
Overhead projector	9	13	12	4	38
	100.0%	92.9%	85.7%	80.0%	90.5%
Spare parts (e.g. bulbs)	2	4	4	1	11
	25.0%	36.4%	36.4%	20.0%	31.4%
Library (including EPHTI modules, EPHTI teaching notes, reference books and medical/public health journals)	9	11	14	4	38
	90.0%	78.6%	87.5%	80.0%	84.4%
If yes, is the library adequate for your training needs?	3	5	4	3	15
	42.9%	50.0%	30.8%	75.0%	44.1%
Laboratories	6	10	8	2	26
	66.7%	71.4%	57.1%	40.0%	61.9%
If yes, are the laboratories adequate for your training needs?	3	2	1	1	7
	60.0%	20.0%	12.5%	50.0%	28 %
Textbooks	9	14	13	5	41
	90.0%	100.0%	92.9%	100.0%	95.3%
If yes, are the textbooks adequate for your training needs?	4	4	7	2	17
	50.0%	33.3%	50.0%	50.0%	44.7%
Modules	7	8	8	5	28
	77.8%	61.5%	66.7%	100.0%	71.8%
If yes, are the training modules adequate for your training needs?	6	4	4	3	17
	75.0%	57.1%	50.0%	75.0%	63.0%
If yes, are the lesson notes adequate for your training needs?	7	10	8	3	28
	77.8%	66.7%	61.5%	75.0%	68.3%
Other teaching materials (e.g. models, modules, manuals, lecture notes)	8	7	7	5	27
	88.9%	53.8%	53.8%	100.0%	67.5%
Basic consumables and other supplies	7	8	8	2	25
	77.8%	57.1%	57.1%	40.0%	59.5%

Section D by Region

	Region	Total

	Tigray	Oromia	SNNP	Harari	
Basic sciences instructors	2	1	5	3	11
	66.7%	12.5%	55.6%	60.0%	44.0%
General practitioners	1	5	15	2	23
	14.3%	38.5%	93.8%	66.7%	59.0%
Surgeons	2	5	14	2	23
	33.3%	45.5%	93.3%	40.0%	62.2%
Ob/Gyn specialists	0	6	13	1	20
	0.0%	54.5%	86.7%	20.0%	54.1%
Internists	3	4	2	1	10
	50.0%	28.6%	15.4%	20.0%	26.3%
Nurses	5	9	12	2	28
	83.3%	90.0%	100.0%	40.0%	84.8%
Pediatricians	0	4	1	2	7
	0.0%	30.8%	7.7%	50.0%	19.4%
Public health specialists	5	2	2	2	11
	50.0%	18.2%	15.4%	50.0%	28.9%
Supervisors, managers and administrators	4	5	8	1	18
	57.1%	45.5%	66.7%	20.0%	51.4%

Section E by Region

	Region				
	Tigray	Oromia	SNNP	Harari	Total
Receive training in teaching methods from the Carter Center	5	5	4	2	16
	50.0%	38.5%	26.7%	40.0%	37.2%
If yes, did the training prepare you well for the training task?	2	0	2	0	4
	100.0%	0%	66.70%	0%	66.7%
Received training in scientific writing skills	2	2	2	0	6
	20.0%	16.7%	13.3%	0.0%	14.3%
The training prepare me well for the training task	2	1	2	1	6
	100.0%	25.0%	50.0%	100.0%	54.5%
Received training in HIV/AIDS Core Competencies	3	4	7	4	18
	30.0%	33.3%	46.7%	80.0%	42.9%
The training prepare me well for the training task	3	3	6	4	16
	100.0%	60.0%	100.0%	100.0%	88.9%

Section F by Region

	Region	Total

	Tigray	Oromia	SNNP	Harari	
EPHTI modules available at training site	9	6	11	4	30
	90.0%	46.2%	84.6%	80.0%	73.2%
Modules available in sufficient numbers for the trainees	6	2	5	2	15
	75.0%	28.6%	50.0%	50.0%	51.7%
EPHTI lesson notes available at training site	8	12	11	4	35
	80.0%	92.3%	84.6%	80.0%	85.4%
EPHTI lessons available in sufficient numbers for the trainees	5	6	2	2	15
	62.5%	54.5%	25.0%	66.7%	50.0%
EPHTI teaching materials are up-to-date	5	11	7	4	27
	50.0%	91.7%	63.6%	80.0%	71.1%
Are the materials relevant for the training needs of health officers?	9	13	14	4	40
	90.0%	100.0%	100.0%	80.0%	95.2%
Additional textbooks/reference materials available at the training site	8	9	9	4	30
	80.0%	75.0%	60.0%	80.0%	71.4%
Use the EPHI training modules and training materials	9	9	11	4	33
	90.0%	81.8%	78.6%	80.0%	82.5%

Section G by Region

	Region				
	Tigray	Oromia	SNNP	Harari	Total
The overall management and coordination of the program is satisfactory	5	7	7	3	22
	50.0%	63.6%	50.0%	60.0%	55.0%
Get adequate support for the program from regional health bureaus	1	3	5	3	12
	10.0%	27.3%	35.7%	60.0%	30.0%
Get adequate support for the program from the affiliated university	5	9	5	3	22
	55.6%	81.8%	38.5%	75.0%	59.5%
Get adequate and regular medical/laboratory supplies for the training program	2	2	2	1	7
	25.0%	20.0%	13.3%	20.0%	18.4%
Get adequate and regular supplies of teaching materials/aids	5	10	6	4	25
	55.6%	83.3%	42.9%	80.0%	62.5%