

Southern Ethiopia/Gwent Healthcare Link

Report of Visit to Ethiopia: 24 October – 6 November 2009

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Introduction

Working as a Senior Biomedical Scientist in North Bristol Trust, I am genuinely interested to assist Link in its on going projects to improve the current Microbiology service standards in Southern Ethiopia. My area of interest is antibiotics, antibiotic susceptibility tests, and antibiotic resistant bacteria. This report summarises my observations and suggestions during my second visit.

Objectives

- Helping to expand Microbiology services at Hawassa Hospital Laboratory
- Visiting Shone and Wondogenet Health Centres
- Teaching MSc students in Addis University

Report

Hawassa Hospital Laboratory:

Although the report for the previous visit (March 2009) declared that the lab was ready to operate, and further communications from Ethiopia to Link suggested that the lab was functional - specifically in urine section - on my arrival to the lab, I realized that it was not functional, and the person who was trained and made responsible had already left. Therefore I started with basic tasks, cleaning the lab, assigning function to each room and relocating equipment and material accordingly, preparing material stock list and equipment check, improving lab safety by having electrical connections repaired, visiting the main stores of the hospital, and assigning an individual as a trainee. These tasks are described below.

During my visit we agreed to assign separate functions to the rooms. Consequently the lab consists of a big hall used as reception area for patients coming with sample and a requesting form. There are four rooms and lavatory attached to this hall. The smallest room is now used as media store. Another room houses the autoclave, wash-up and media preparation. The third room, which is the main room for culture reading and microscopy, contains incubators, fridge, centrifuge, microscope and other small items and equipments. Finally the fourth room is set up as an office with a big desk and a computer.

With regard to the stock, I realized that there was no system in place for managing them. For instance there were over 40 types of powder to make media, not sorted by expiry

dates nor orderly shelved. The fridged antibiotic discs also had a similar situation. A list of these materials has been prepared and is attached to this report. Also I have made some comments and suggestions that come later in this report.

Safety standards were neglected all across. In particular equipment guides were missing, and electric sockets were dangerously exposed. During this visit instructions for some of the equipments were found and labeled next to them. Also all hazardous electrical connections were repaired. Further suggestions will follow in a later section.

Visiting the two main stores of the hospital, I realized there was no stock list whatsoever. For instance some equipment has been stored for several years, but never used. Examples were 3 cabinets bio II A/P (Telstar), 2 dry autoclaves (Binder), 2 huge Biomatrix incubator with no shelves or manual, and many other small instruments. During this visit we managed to order some items from the store. In particular we ordered a fridge, supposed to be delivered after my departure, for storing weekly prepared media.

Upon my arrival Mr Getahun Almeskal was assigned as my trainee, as he would eventually supervise the lab. In addition other people from the main lab, and two Masters students joined in throughout my work. Mr Musa Mohammad, one of the talented MSc students, showed extreme commitment and, in my opinion, will become a valuable asset to the lab.

We prepared a number of media like blood, chocolate, Muller Hinton and MacConkey agar, CLED, DCA and XLD. The blood for preparing some of the media was extracted from local sheep, and most of the staffs were capable of bleeding the sheep. Preparing the media was practiced a few times, and they showed their competence.

We communicated with medical staff to send some urine samples for culture and microscopy. Request forms were already available, but I would suggest some changes to the form, as explained later. Also we moved the microscope and centrifuge to this lab, so that microscopy and culture could be done in the same place. The microscope lens was not in a good state, and I had to request for another microscope that was spare in the main lab. This was to be delivered after my departure. They also needed a gram staining set in this lab. During my visit we received several urine samples for microscopy, culture and sensitivity. Unfortunately only a few of the samples grew significant organisms. In addition we practiced on some vaginal, ear and wound swabs. Although there were some identification substances like catalase, oxidase and plasma available, there were no procedures for sustaining their stock. As our initial focus was on microscopy, culture and sensitivity of urine, we attempted to document an SOP for urine processing. My general impression as I left was that the staffs were confident in processing urine samples.

Also I delivered a few lunch time presentations open to everyone which was attended by some college and lab staffs and college students. The focus of the talks was “Antibiotic Susceptibility Testing in Laboratories” and “Lab Management.”

After visiting the main lab several times, I shared my observations and suggestions with the lab manager. Of significance was visiting Tsegahun Manyazewal, representative of John Hopkins University and Laboratory Support Coordinator, based in Hawassa Hospital. He expressed his willingness to offer support to culture lab.

Shone and Wondogenet Health Centres:

On the 29th October along with other LINK members I was present in the ceremony where a motor ambulance was donated to Shone Health Center. Also I visited this centre to assess their lab along with two other LINK biomedical scientists. The lab technician was so burdened by the number of malaria slides, counting to 74 positive by mid afternoon, that he could hardly spare any time for other tests. Therefore microbiology work was mainly dedicated to making slides of sputum to diagnose TB. Obviously the workload demands more lab technicians to deal with other important tests too.

Then we visited the Wondogenet Health Centre on 31st October. The lab had expanded compared to last year, and there were only a few patients at the time we arrived late in the afternoon. Overall the lab, stock, documentation, etc. were well organized.

Teaching MSc students in Addis University

On the final day, I delivered a series of lectures to a group of Biomedical Sciences students at Addis University. Although the original plan was for Masters students only, on the actual day, a group of third year BSc students also joined to form a large audience. The title of lectures were “Basis of Antimicrobial Action”, “Antibiotic Resistance”, “Current Antibiotic Resistant Issues”, “Antibiotic Susceptibility Testing in Laboratories” and “Lab Management.” Copies of journal research papers on relevant issues were subsequently handed on to the university staff.

Suggestions

1. Training
 - a. One or two staffs should be nominated for training in big culture labs in other parts of Ethiopia.
 - b. A system should be in place for cascading training among the staff.
 - c. Lunch time talks and experience exchange meetings could be run to enhance staff knowledge and skills.
 - d. The staff should receive basic training for the equipment maintenance. A tool box is needed for basic maintenance and repair.
2. Quality Control
 - a. The quality of media and potency of antibiotic discs must be regularly checked using control organisms. Control organisms should also be used for training purposes.

- b. To standardize all procedures and enhance the service, SOPs should be devised prior to the service launch. For instance a wound SOP is needed now as the lab is expanding to process wound swabs soon.
- 3. Administration
 - a. The employees should have a personal folder and clear job description.
 - b. Besides the head manager, each lab should have its own manager. This will improve work flow and enhance head manager's communication with the staff through his managers.
 - c. The weekly rota should be clearly displayed in each lab.
- 4. Inventory
 - a. A system for ordering/checking stock should be in place.
 - b. A list of items in the store should be available and updated regularly.
- 5. Health and Safety
 - a. A standard for discarding used material and samples should be established, and strictly observed.
 - b. In addition faulty equipments which cannot be repaired should be discarded.
- 6. Other
 - a. To diagnose septicemia the use of manual blood culture is a practical solution. I have already discussed the suitability of this system with the staff, and therefore suggest that this matter be followed up.
 - b. The culture lab and the medical staff should communicate their requirements. Medical staff should be reminded of the diagnostic significance of culture results, where relevant. Perhaps Link can effectively promote this idea by running workshops.