Kamuzu Central Hospital Microbiology Study: A Partnership with the UNC Project

Lilongwe, Malawi

Emily Wenink
MSPH Candidate
UNC Dept. of Epidemiology

Background

Rarely are specimens collected and cultured for proper diagnosis of patients at KCH. Resources are limited, and diagnosis is generally presumptive based on clinical presentation (i.e. patient signs or symptoms). In an effort to establish patterns of infectious disease and antimicrobial resistance, the KCH Micro Study, in partnership with the UNC Project laboratory, will take appropriate specimens and test specified pathogens identified for drug resistance for patients admitted to KCH hospital. After its conclusion (approximately 1 year in duration), the data collected will be used to develop treatment algorithms that outline the most appropriate course to take to treat patients that present with certain signs or symptoms, and what drugs would be the most effective given the determined resistance patterns.

In Lilongwe at the UNC Project, located across the road from KCH, I assisted Dr. Mwai Makoka with study planning and beginning stages of study implementation. These included: health care worker training, drafting patient forms, organizing meetings with heads of each medical department, inventory of lab media, assembling specimen collection kits, and communicating with data management to develop an appropriate database.

Objectives

- Provide efficient lab testing and diagnosis for current patients
- Determine patterns of pathogen antibiotic and antifungal resistance
- Develop treatment algorithms for better patient care in the future

Organisms (#) Identified So Far:

- S. aureus (19)
- Salmonella (3)
- S. pneumoniae (3)
- E. coli (3)
- C. neoformans (5)
- Proteus (1)
- Mycobacterium (1)

Sensitivity Testing Results: Nine Samples of S. aureus

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<th>Clindamycin</th>
<th>Gm</th>
<th>Erythromycin</th>
<th>Ccol</th>
<th>TMP/SXT</th>
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R=Resistant, I=Intermediate, S= Susceptible

Study Design

Patient presents with symptoms of an infectious disease

Doctor examination and tentative diagnosis

If patient has syndrome included in study, then patient is recruited and registered (See syndromes below)

Nurse or physician collects necessary specimens

Specimens and lab order and patient forms transported to UNC lab within 2 hrs. of collection

Lab identifies infectious organism by interpreting cultures

Results returned to physician or nurse to continue or alter treatment based on diagnosis

Culture is used for susceptibility tests

In the UNC Lab...

Pathogens for Susceptibility Testing:

- Staphylococcus species
- Salmonella species
- Streptococcus species
- Escheria coli
- Candida albicans
- Cryptococcus neoformans

Antibiotics for Susceptibility Testing:

- Gram positives: Chloramphenicol (Ccol), TMP/SXT, Gentamicin (Gm), Clindamycin, Erythromycin, Oxacillin (Ox), Tetracycline
- Gram negatives: Chloramphenicol (Ccol), TMP/SXT, Gentamicin (Gm), Amoxicillin (Am), Ceftriaxone (CRO), Ciprofloxacin (Cip), Nalidixic Acid (NA)

Acknowledgements

I would like to extend my deepest gratitude to the following: Dr. Mwai Makoka, Irving Hoffman, Dr. Steven Mestnick, Gretchen Van Vilet, Dr. Peter Gilligan, Dr. Mina Hosseini pourop, Debbie Kamwendo, and other friends at the UNC Project and KCH in Lilongwe, Malawi.