# Global Health Interprofessional Program
## Summer 2018 - Zambia

<table>
<thead>
<tr>
<th>Title of Proposed Project</th>
<th>Assessment of medical and pharmacy student knowledge of antimicrobial spectrum in Lusaka, Zambia</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>University of Maryland School of Pharmacy</td>
</tr>
<tr>
<td>Faculty name</td>
<td>Neha Sheth Pandit, Associate Professor Vice Chair of Research and Scholarship</td>
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<tr>
<td>Appointed department(s)</td>
<td>Department of Pharmacy Practice and Science</td>
</tr>
<tr>
<td>Number of students</td>
<td>2</td>
</tr>
<tr>
<td>Disciplines of students</td>
<td>Medicine, Nursing, Pharmacy</td>
</tr>
<tr>
<td>Proposed project period</td>
<td>The students will be in Lusaka for 4 weeks, tentatively 6/4/18-6/29/18. Drs. Pandit and Heil will plan to be in Lusaka for the first 2 weeks and the students will be supervised by Dr. Claassen for the second 2 weeks.</td>
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<tr>
<td>Areas of academic focus</td>
<td>HIV, Infectious Diseases, Primary Care, Education</td>
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<tr>
<td>Estimated student cost</td>
<td>$800-$1,000</td>
</tr>
</tbody>
</table>

## Project Faculty:

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### International Site Co-Investigator
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### Dr. Derick Munkombwe, DipEd, BPharm, MPH, PhD  
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Host Country Institution: The University Teaching Hospital in Lusaka is one of the first of its kind in Africa. Faculty from the Institute for Human Virology are involved in providing education and clinical services at the hospital. Dr. Cassidy Claassen, technical director of the Maryland Global Initiatives Corporation (MGIC), and Dr. Lottie Hachaambwa, director of the MMedID program will be the locally present faculty involved in assisting with the students. Dr. Claassen has been with the UMB IHV department and placed in Zambia for over 2 years. Dr. Hachaambwa has been affiliated with UMB for over 12 years. Dr. Mukombwe is the head of the department of pharmacy and school of pharmacy at the University of Zambia.

Timeline of in-country activities:
The students will be in Lusaka for 4 weeks. Drs. Pandit and Heil will plan to be in Lusaka for the first 2 weeks and the students will be supervised by Dr. Claassen for the second 2 weeks. In country daily activities will include participating on interdisciplinary patient care rounds, providing didactic education to site house staff, and conducting a quality improvement project. For the purpose of this project students will work to obtain necessary data for the completion of this project.

Background:
Antimicrobial resistance (AMR) has become a top public health threat worldwide. The World Health Organization (WHO) has developed a global action plan to mitigate AMR and ensure, for as long as possible, the ability to successfully treat and prevent infectious diseases. The global action plan set out five strategic objectives:

- To improve awareness and understanding of antimicrobial resistance
- To strengthen knowledge through surveillance and research
- To reduce the incidence of infection
- To optimize the use of antimicrobial agents
- To develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions

The WHO plan encourages that people from all sectors and disciplines be engaged in the efforts to preserve the effectiveness of antimicrobials through antimicrobial stewardship. The goal of a stewardship program is to monitor and promote optimization of antimicrobials by making sure patients get the right drug, at the right dose for the right amount of time. Formal antimicrobial stewardship programs are required in all United States Hospitals by the Joint Commission and the Centers for Medicare and Medicaid Services as of January 1, 2017; however, antimicrobial stewardship efforts are very much in their infancy in resource limited settings. Since pharmacists and physicians represent core members of an antimicrobial stewardship team, it is essential that pharmacy and medical graduates have a strong foundation in antimicrobial spectrum of activity and judicious utilization of antimicrobials. Outside of formal antimicrobial stewardship programs, pharmacists are well positioned to act as antimicrobial stewards in a variety of practice settings given their accessibility to the community. Therefore, a working knowledge of antimicrobial spectrum and principles of antimicrobial stewardship is required for pharmacy students regardless of future practice settings. Additionally, physicians, as the primary prescribers for antimicrobials must be informed on appropriate antimicrobial prescription. Education on antimicrobial spectrum of activity and appropriate antimicrobial use, particularly early in training for medical and pharmacy students, is not consistent amongst curriculums and most graduating students in the United States would like more education on responsible antimicrobial use.

Assessment of pharmacy and medical student knowledge of responsible antimicrobial use in Zambia is not well described.

Drs. Pandit and Heil, along with other faculty from the pharmacy, medical and nursing schools, are currently working on a project to develop engaging training tools on antimicrobial spectrum of activity and antimicrobial stewardship using an interactive, app-based platform. The tools would have interdisciplinary applicability and could be used as an educational supplement in all health professional schools. With the results of our currently proposed project, an assessment of the applicability of this app-based tool for students at the University of Zambia will be made.

Project Goal:
The overall goal of the project is to assess pharmacy and medical student knowledge of antimicrobial spectrum of activity and responsible antibiotic use at the University of Zambia Schools of Medicine and Pharmacy. This will be used to inform the development of training tools to facilitate learning of this topic.

Project Objectives:
1. Students selected for this project will work with faculty to develop a tool to assess the knowledge of medical and pharmacy students at University of Zambia on antibiotic spectrum of activity in addition to their confidence level of responsible antimicrobial use.

2. Students selected will administer these assessment tools to the University of Zambia medical and pharmacy students at varying stages in their curriculum.

3. Students selected will compile the data gathered to provide a descriptive analysis on the student’s baseline knowledge of antibiotic spectrum of activity.

4. Students selected will work with University of Zambia medical and pharmacy students to obtain a better understanding of their respective curricula.

5. Students selected will work with the faculty to develop a plan to improve medical and pharmacy student knowledge on antibiotic spectrum of activity based on the results of this study.

**Project outcomes:**
Students will become familiar with antibiotic stewardship in resource-limited settings and different barriers to successful program implementation. Students will complete and submit a reflective paper upon completion of project and present their project in an on-campus forum. Project findings will be used to inform development of educational tools that will be used at UTH Schools of Medicine and Pharmacy for future classes.

**Interprofessional role:**
The Centers for Disease Control and Prevention (CDC) state that a physician and a pharmacist are key components of an antibiotic stewardship program to ensure accountability and drug expertise. The CDC further states that support from nurses are imperative as they can assure that cultures are performed prior to antibiotic initiation. As nurses are also the healthcare professional that often administers prescribed antibiotics, they are uniquely situated to prompt discussions of responsible antibiotic use. Though roles may vary in resource-limited settings, medical, pharmacy, and nursing students from UMB would all be offered the unique opportunity to assess an antibiotic stewardship program in a resource-limited setting and how their roles could impact the responsible use of antibiotics.

**In-Country Lodging/Transportation:**
Students will be housed at the guesthouse on the University Teaching Hospital campus. Airport transit to the guesthouse will be provided. Further in-country transportation will not be provided for students. From the guesthouse students will be able to walk to and from all in-country project activities as they are held on the same campus as the housing. For travel off campus, students will be provided with contact information for trusted taxi drivers.

**Cultural expectations:**
Multiple pre-travel meetings will take place with faculty prior to departure to discuss cultural expectations. The main language spoken at the hospital is English, however patients may speak other languages. The pre-travel meetings will include how to conduct oneself while abroad, safety, dress code, and any other relevant information.

**Human subjects training:**
All students will be required to complete HIPAA and CITI training. This project will be submitted to the UMB School of Medicine IRB prior to departure. This project will also be submitted to the IRB for University Teaching Hospital for approval.

**Pre-Departure Plan:**

- **4-5 months prior to departure:** Drs. Pandit and Heil will meet with the students, provide travel preparation guidance (e.g., immunization, housing, transportation), and additional background about the country. We will review details about the project, literature review, and core responsibilities of the students.

- **2-3 months prior to departure:** Students will conduct a review of the literature to include WHO guidelines, and recent publications on the topic of antimicrobial stewardship in resource-limited countries. Students will work with faculty to develop a tool to assess the students’ knowledge of antibiotic spectrum of activity, judicious antibiotic use, and common practices for learning this material.

- **1 month prior to departure:** We will meet with the students before they travel to Zambia to discuss cultural issues, safety, and other pertinent information with respect to Zambia and the providers with whom they will interact.
Dr. Pandit and Heil will remain in close contact with the students through email and will make ourselves available to meet with them at additional times as needed to address any questions or concerns they have before they arrive in Zambia and while they are in-country.

**Post-project requirements:***
In addition to requirements set forth by CGEI, students are expected to provide the data for the project in a requested format by the faculty. With the guidance of the faculty students are also required to provide a preliminary analysis of the data. Students will be required to develop a poster and manuscript with the results. The poster will be presented at minimum at the University of Maryland School of Pharmacy Research Day in 2019. A manuscript may be submitted for publication but is not a requirement.

**Students requesting academic credit:**
We will work with students from any school looking to receive academic credit depending on the requirements for the credits.

**References:**