

Capstone for Impact Submission | GY2020

Project Title: Antimicrobial Stewardship in Northern Tanzania

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Branch: Patients & Populations

Path of Excellence: Global Health and Disparities

If this project can be continued by another UMMS student, please include your contact information or any other details you would like to share here:

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Summary: In the developing world, ease of access to antibiotic medicines, poor provider education, and poor community knowledge about antibiotics lead to irresponsible use of antibiotics. This promotes the development of antimicrobial resistance (AMR). Few interventions exist to combat AMR within healthcare systems in East Africa. However, due to the easy access to antibiotics without a prescription in rural communities, these interventions do not affect a significant driver of the AMR crisis in this region. This pilot intervention uses a novel and interactive approach to educate youth about the fundamental concepts of antimicrobial resistance using sports and games. We believe that, if this intervention could be implemented in rural communities across the developing world, this could have a significant impact on the global AMR crisis in the future.

Methodology: During March-April 2020, the fourth-year medical student (MS4) will travel to the Kilimanjaro Christian Medical Centre (KCMC) in Moshi, Tanzania to collaborate with an Antimicrobial Stewardship Committee at the institution. The MS4, in partnership with a Tanzanian community counterpart, and potentially a medical student from KCMC, will pilot a rural community intervention titled, “Sports Teaching Antimicrobial Resistance & Stewardship (STARS).” STARS comprises 14 interactive sessions that convey basic concepts of antimicrobial resistance using sports and to a cohort of 15 – 20 youth in a village in the Moshi region of Kilimanjaro, Tanzania (however, no more than 10 sessions will be piloted during the international capstone experience). The sessions will be delivered in Swahili language. Each session will consist of: *(See supplemental material #1 for an introduction and list of lessons, and materials #2-4 for two sample lesson plans.)*

- A. Introduction and discussion questions
- B. Game demonstrating core stewardship concept
- C. Debrief
- D. Takeaway message

Prior to the intervention, the participants, each participant will take a 15-question pre-intervention knowledge and attitudes assessment. Following this, the 10 sessions will take place over the course of one month. At

the conclusion of the intervention, the participants will answer the same 15 questions as a post-intervention knowledge and attitudes survey in order to assess educational outcomes.

In addition, the MS4 will contribute to existing antimicrobial stewardship activities, including provider education, community educational campaigns, and data collection for ongoing research (*see supplemental material #5 for a sample community education visual aid*).

Proposed Results: Proposed outcomes of the intervention will be assessed via pre- and post- knowledge and attitude assessments. We predict that participants will demonstrate gain increased knowledge about antimicrobial resistance, be able to differentiate between bacterial vs other microbiological causes of certain common infections and demonstrate increased commitment to stopping the spread of resistant pathogens by using antibiotic medicines only for bacterial infections.

Conclusion: (*to be completed after completion of project*)

Reflection/Impact Statement:

This project is extremely meaningful to me because it directly addresses a problem that I encountered during my Peace Corps service in the Kilimanjaro region of Tanzania. This is the same region where I will complete the pilot, which makes it even more meaningful for me. If this pilot intervention is successful, it could lay the foundation for future medical students to continue engaging in stewardship work with the KCMC ASC. In order to continue the momentum of this project during my busy years of residency, I would love to pass this project onto an interested student. I do have two friends who are current UMMS students and former Peace Corps Tanzania volunteers. I will continue to explore the possibility of them taking over this project.

Eventually, I would like to see this intervention adopted by the Peace Corps and delivered by Peace Corps Volunteers (PCVs) and their host country counterparts (HCCs) in rural communities across the developing world. I have discussed the project idea with leadership members in Peace Corps Tanzania, who supported the project. In order to eventually secure grant funding for this project to take place across Peace Corps countries, AMR would need to become one of Peace Corps' priorities. This is a future goal that I hope my connections within the Peace Corps network would help with. I have also met with a consultant at the Williams-Davidson Institute at the University of Michigan, who supported the project idea and offered his help in making important connections. The consultant with whom I met with has connections to large organizations such as the Gates Foundation who have previously demonstrated commitment to the issue of AMR. Thus, continuing contact with project supporters such as Peace Corps Tanzania and my contact at the Williams-Davidson Institute will be important to foster a larger impact for this project.