

# **From Multidisciplinary to Transdisciplinary Collaboration in Global Health: A Case Study of the University of Maryland Global Health Interprofessional Council's Malawi Project**

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## Author Note

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## **Abstract**

Seven University of Maryland, Baltimore (UMB) graduate students, one from each of the professional schools, spent a total of six weeks in Malawi on an interdisciplinary program associated with UMB's Global Health Interprofessional Council (GHIC). During the first two weeks, UMB students collaborated with students and faculty of the Chancellor College of Law at the University of Malawi (Chanco). The students spent the next two weeks at the Mfera Health Center in the Chikhwawa District completing activities that are part of the Participatory Analysis for Community Action (PACA) framework. Study participants were divided into three groups (men, women and children separately) who completed community mapping, daily schedules, seasonal calendars, health calendars, and a needs assessment. Results were presented at an Mfera community celebration sponsored by UMB students and faculty. The project evolved from a multidisciplinary model to a transdisciplinary experience.

Keywords: multidisciplinary, community needs, interdisciplinary

## **From Multidisciplinary to Transdisciplinary Collaboration in Global Health: A Case Study of The University of Maryland Global Health Interprofessional Council's Malawi Project**

The Global Health Interprofessional Council (GHIC) at the University of Maryland Baltimore (UMB) Founding Campus funded an inter-professional team of seven students to represent the six different schools on the graduate campus for a global health research project in Malawi in the summer of 2013. Chosen for their backgrounds and interest in global health, the highly qualified applicants were from the Schools of Dentistry, Social Work, Nursing, Law, Pharmacy, and two from Medicine with one student being from the department of Physical Therapy.

Throughout the six-week experience students were supported and accompanied by full-time UMB professors from the Schools of Law, Medicine, Social Work, and Dentistry, as well as local administrative and logistical support from the Blantyre Malaria Project (BMP). The interdisciplinary group spent the duration of the project in southern Malawi with the intent of fulfilling two main objectives. The first was to establish an on-going relationship between the University of Maryland School of Law (UMB Law) and the University of Malawi Chancellor College of Law (Chanco). The two schools sought to collaborate their respective HIV law clinics as the focal point of this discussion. The second was to engage the rural village of Mfera, located in the Chikhwawa District, to assess community needs. The students employed the Participatory Analysis for Community Action (PACA) methodology designed by the Peace Corps in order to conduct this research.

In 2012, the student group, two from each of the six schools, studied maternal health in twelve Chikhwawa District Health Centers using the World Health Organization's safe-motherhood methodology (Schonfield, et al., 2012). Departing from the previously more quantitative data-focused research, the 2013 project highlighted qualitative data through utilization of the PACA methodology to focus more specifically on learning about the cultural and behavioral framework within which the community understood and accessed resources.

The 2013 summer program is the fourth six-week Malawi project sponsored by the GHIC. The GHIC, created to promote international health education, research and multidisciplinary cooperation, includes interdisciplinary projects among its many initiatives. Fostering the burgeoning emphasis of global health and interdisciplinary work on campus, the GHIC, with the generous support of President Perman, launched the initial project in 2010 with the objective of assessing the health care needs of orphans and vulnerable children. Building upon the previous year's success, students representing all six schools were chosen in 2011 to assess the frequency of fevers in the Chikhwawa District. Each of the four programs have integrated two critical themes: experiencing the value of integrating different health related disciplines to assess and understand specific health issues in a low resourced country; and understanding the relationship between specific skill driven health care delivery models and the knowledge of the frameworks within which they are being delivered.

As a framework, the project looked at the effectiveness of an inter-professional group in addressing global health and legal issues in the context of a multiple disciplinary model (Choi & Pak, 2007). According to Choi & Pak, (2007), a multiple disciplinary model includes multi-disciplinary, inter-

disciplinary and trans-disciplinary. This model was used to describe how various individuals from different disciplines interact with each other to resolve real world and complex problems (Choi & Pak, 2007). This framework will be more clearly defined in the discussion of this paper. The 2013 project evolved from the interaction amongst the disciplines as well as the inter-cultural work in the community. This initiative resulted in a transdisciplinary model of group interaction in which the boundaries of each discipline dissolved in order to reach a greater common goal.

Initially the UMB team in conjunction with the Chancellor College of Law discussed the impact of HIV/AIDS in both a local and a global context. This collaboration involved lectures and roundtable discussions from local HIV/AIDS support groups such as mothers2mothers, information sessions from pharmacy professors at the College of Medicine in Blantyre, visits to various HIV/AIDS clinics in Blantyre and Zomba, joint lectures and discussions on global human rights, as well as large group interactive case studies. In addition, each UMB student was responsible for a presentation with the objective of disseminating information on his/her profession's role in the treatment, care, or advocacy of patients with HIV/AIDS. Students from both UMB and the Chancellor College of Law worked together, in both professional and social settings, to share their personal, professional, and academic perspectives of the impact of HIV/AIDS with the common goal of learning and creating an international, interprofessional relationship.

Following the theme of intercultural work, the UMB students came together as a unified group to approach the task of Participatory Analysis for Community Action (PACA) activities in the rural community of Mfera. PACA is a method developed by the Peace Corps to facilitate people-centered and strength-based development (Peace Corps, 2005). This approach not only empowers people, but also emphasizes the positives of the community rather than focusing on the negatives. The PACA approach involves small groups that facilitate discussions and activities that identify community needs. These activities include community mapping, needs assessments, daily activity schedule, seasonal calendars, and community health calendars. After the activities are completed, groups reconvene and discuss the analysis together. This method required less of a clinical perspective and, instead, promoted working together to solve intercultural problems with the subtlety of one's own professional context in mind. The work in the community that then resulted stemmed from interacting with and learning from small groups of women, school aged children, and men, as the UMB students facilitated needs assessments, community mapping, and other PACA activities to be outlined in later sections.

## **Background**

The Mfera community is a rural area in the Chikhwawa District of Southern Malawi, with a population of approximately 25,000 people, of whom over 50% were under the age of fifteen (E. Delacey, personal communication, June 27th, 2013) Mfera, like other rural areas of Malawi is governed by a duality of authority figures: local traditional governments (Village Chiefs, Traditional Authorities, etc.) and the Malawian State Government. These parallel systems are pervasive throughout the community of Mfera, including health care. For example, community members report seeing witch doctors for traditional healing methods in addition to seeking health care at the village health clinics. Socially, the customary girls and boys' initiation practices (e.g. rites of passage normally occurring during

puberty) are balanced with teachings in youth groups about HIV awareness. It is important to recognize the overlapping roles of traditional and western practices in Mfera in order to appropriately frame the context of the research that the UMB team conducted.

The Mfera Community was selected by the GHIC as the location for the PACA research. The Blantyre Malaria Project (BMP) administrators contacted the Health Services Administrator (HSA) in charge of managing the Mfera Health Center to organize and pre-select the three community cohorts.

### **Methods**

In the first portion of the GHIC interdisciplinary project, the students from the University of Maryland Baltimore (UMB) participated in a number of interdisciplinary and intercultural activities based at the Chancellor College of Law (Chanco). The first two days of the two-week project, Peter Danchin and Diane Hoffman from the UMB School of Law and Chikosa Banda from Chanco led the participating students through numerous activities pertinent to the HIV/AIDS epidemic in Malawi. The first activity of the week was a discussion about the World Health Organization (WHO)'s mother2mothers program followed by a trip to the Malawi high court. The following day, the UMB students and the Chanco law students attended a presentation in Blantyre by a Malawian pharmacist, John Mponda, who gave an overview of HIV in Malawi and the medications used locally to treat the disease. The students visited the HIV/AIDS clinic in Ndirande where Dr. Titus Divala and Dr. Randy Mungwira gave a presentation on HIV/AIDS in the country. Next, the students and faculty traveled to the HIV/AIDS law clinic in Zomba. At Chanco, Diane Hoffman, Chanco faculty, and UMB students presented on HIV/AIDS issues. During the second week, the UMB and Chanco students and faculty attended presentations by the remainder of the UMB student group and Peter Danchin about international human rights law. In addition, the UMB students visited the HIV/AIDS clinic in Zomba, directed by Dr. Joop van Oosterhout.

The Peace Corps Participatory Analysis for Community Action (PACA) methodology was used in the second portion of the project. The five PACA activities that were conducted include community mapping, seasonal calendars, daily schedules, health calendar, and a needs assessment (Peace Corps, 2005). The groups of men and women met from approximately 9 am to noon each day and the children's group met from approximately 10 am to noon. All participants to promote an atmosphere of interprofessional and intercultural cooperation shared lunches daily.

To commence the PACA activities, a few facilitative steps were taken. First, the student group met the Traditional Authority (TA) and the local village chief to establish rapport and request permission to complete the project.

The students divided among the three study groups of participants from the community. One student was a reporter who objectively observed and recorded activities of each group while the remaining six students divided into pairs to facilitate each of the three community groups. Each of the three groups was assigned a separate room within the health center. The first group consisted of men: three teachers and two Health Surveillance Assistants (HSA); the second group contained women with children under the age of five who were all subsistence farmers, including a shop owner, a volunteer

nursery school teacher, and a student. The children's group was comprised of student's age 11 to 16 years old. Translators provided explanations when working with the women's and the children's groups because of the language barrier, however translators were not needed with the men's group because all of the male participants spoke English. The Head HSA of the Mfera Health Center pre-selected the participants; however, the selection criteria were unknown.

The first PACA activity was community mapping, a technique used in communities, classrooms, workplaces, and other settings to assess the location of resources, institutions, centers, and other places where community members spend their time (Peace Corps, 2005). This technique is also used to compare perceptions of the relative importance of different resources throughout the community. Flip chart paper, larger markers of various colors, construction paper, scissors, and tape were used to complete the project.

At the start of the community mapping activity, each pair of UMB students introduced themselves to the participants and explained the purpose of the activity. The study participants were informed that their findings would be presented to the other two groups and to the community as a whole. Team building exercises were then utilized to help participants become more comfortable with each other and their student facilitators. Children drew pictures of their families to share, women helped decorate the room, and the men drew small maps of their villages.

Next, the study groups started the drawings of their community. In order to complete the drawings, participants were asked to include specific locations where they spend their time such as schools, places of religious worship, markets, etc. After the completion of the drawings, each group used uniquely colored post-it notes to identify places they spend time daily (pink), weekly (green), and monthly (blue). In addition, they identified locations they favor (green) and dislike (red) using colored stickers. Finally, all of the maps were posted and presented to all three groups collectively and representatives from each group described their map. Each of the groups was encouraged to ask questions of each other. Patterns of frequency, likes and dislikes, and similarities were discussed. After the discussion, each group disclosed what they learned. The entire activity was completed over the course of three days.

The second PACA project was a list of each group's daily calendar. The materials used were large pieces of flip chart paper, 8" X 11", and writing implements. Two students were again assigned to one of the three groups. One of the students from the community mapping activity remained with his or her original group and the other students either rotated to another group or shifted roles to become a reporter. This method maintained continuity and preserved a level of comfort and familiarity for study participants. After the participants and group leaders introduce themselves, an explanation of the actual activity and its purpose was provided. Each participant either verbalized or wrote his/her weekly and weekend activities. The participants were instructed to begin their daily schedule from the time they woken to the time they went to sleep. The activities were assigned rough estimates of time.

Seasonal calendars were also created since weekly and weekend activities differed between the dry and wet seasons. Materials were available to complete the exercise, including flip chart paper, colored writing implements, scissors, glue, and tape. The same UMB students from the daily activity schedule were assigned to the various groups. After providing an introduction to the activity, the different seasons were then assigned to the months of the year. Next, the study groups indicated tasks and activities associated with the seasons and discussed how these duties changed throughout the year. For example, the amounts of sunlight and precipitation were described during the rainy, dry, and transitional seasons. Finally, each group analyzed its own calendar to look at the changes in activity of the group throughout the year.

The next PACA activity was the creation of health calendars by the women and men's group. The children's group did not have enough time to complete a health calendar. Materials that were used to complete the health calendar include flip chart paper, colored writing implements, scissors, glue, and tape. Similar to the daily schedule and seasonal calendar, an introduction to the activity was first presented by the UMB students. The study participants noted the beginning of the year and listed health conditions, changes in mortality rates, changes in birth rates, and any other health related events.

The final PACA activity was the needs assessment. UMB students rotated through groups as previously described, leaving one person from the last activity for continuity. The materials that were used to complete the exercise included flip chart paper, construction paper, and writing implements of various colors. After UMB students provided an introduction to the activity they elicited the needs and desires of the participants. To help frame and guide the discussion, the children were asked about their wishes and needs specific to the following subcategories: home, school, health center, community, recreational area, and their school. Finally, each of the three groups met to present the findings of the daily calendars, seasonal calendars, and needs assessment, similar to the previous PACA activities.

### **Data and Results**

The majority of the data collected is represented in the images found in the Appendix. Thus, the data and results sections have been combined.

### **Interactions with the University of Malawi Chancellor College of Law**

mothers2mothers. The first interdisciplinary activity with the Chancellor College of Law and University of Maryland Baltimore students was a presentation by a representative on mothers2mothers (m2m). Though this group was founded in South Africa in 2001, m2m now has over 400 sites in South Africa, Kenya, Lesotho, Swaziland, Tanzania, Uganda, and Malawi (mothers2mothers: What we do. 2013). The group has three objectives: prevent mother to child transmission of HIV; help mothers and families to access services to improve their overall health status; and empower HIV-positive women to fight stigma and discrimination (mothers2mothers: What we do. 2013). m2m's staff includes nearly one thousand mentors, which refer to HIV positive mothers who offer supportive and educational services to HIV-positive women within health clinics (mothers2mothers: What we do. 2013). As of 2011, Malawi had 66 m2m sites, 185 women working as Mentor Mothers, and 14,300 pregnant women and new

mothers who are HIV positive and who are enrolled in m2m programs and services (mothers2mothers: What we do. 2013). Women enrolled in m2m programs receive a variety of counseling and education related to reproductive health, maternal and child health, and HIV via group interactions, one-on-one talks, and couples meetings (mothers2mothers: What we do. 2013). Women who received m2m services are more likely to access antiretroviral treatment, more likely to receive adequate monitoring of their CD4 count, more likely to disclose their health status to others, and more likely to deliver their children in health care facilities (mothers2mothers: What we do. 2013). m2m also connects mothers to other organizations that provide psychosocial and medical support.

The UMB graduate students gained a better understanding of how Malawi's health care services offered both medical and psychosocial support for mothers who are HIV positive. They also learned about the stigma that pregnant women who are HIV positive might face as well as how m2m seeks to reduce this discrimination. For instance, m2m encourages women to bring their partners to their appointments to get tested regarding their HIV status and to receive support during the woman's pregnancy. Fostering an open discussion about both the woman's and the man's HIV statuses in the presence of health care professionals and m2m staff reduces the likelihood that the man can blame his HIV status on the woman. This presentation fostered an interprofessional and intercultural exchange among the students and faculty of UMB and Chanco. m2m employs a holistic model of health that addresses medical and psychosocial needs. This organization's success emphasized the importance of an interdisciplinary approach to reducing mother to child transmission of HIV/AIDS.

High Court of Blantyre. The UMB students and faculty spent one afternoon at the High Court in Blantyre to learn about the legal system in Malawi. There are two types of Subordinate Courts: Magistrate Courts and Industrial Relations Courts (The Malawi Judiciary. 2013). The High Court of Malawi has three divisions: the General Division, Commercial Division, and the High Court Sitting on a Constitutional Matter (The Malawi Judiciary. 2013). The highest court in Malawi is the Supreme Court of Appeal (The Malawi Judiciary. 2013). The Malawian court is a Common law system. This means that the country sets its own laws but when there is no Malawian precedent, they follow the English precedent.

After learning about the Malawian legal system, the UMB students were given a tour of the facilities and observed a hearing. This experience provided them with an understanding of the Malawian legal system and the options that citizens have for legal recourse. At Chanco, the UMB students learned how changes in the health system could be elicited via legal channels. At the High Court, however, the UMB students recognized barriers to this process. For instance, many magistrate positions remain empty, resulting in a backlog of cases.

Pharmacy lecture. John Mponda, a lecturer at the College of Medicine Department of Pharmacy led a discussion among Chanco and UMB students and administrators. He lectured primarily about the distribution of antiretroviral treatment in Malawi. The lecture disclosed information about the pharmacology of the drugs that are currently regimented, compliancy of the patients, and sustainability of the country when it comes to drug research and compliancy. The presenter also initiated discussion about the moral, ethical, and legal circumstances surrounding the use of donor funds and the problem

with conditional aid. The discussion was open-ended and included such topics as African politics, economics, history, and social injustice.

Ndirande HIV/AIDS Clinic. Dr. Titus Divala and Dr. Randy Mungwira, study physicians at the Ndirande HIV/ AIDS clinic, lectured to the UMB and Chanco students and administrators about numerous issues pertinent to HIV/AIDs in Malawi. The students learned about the historical background as well as the current situation including the incidence and prevalence among the people of Malawi. Dr. Mungwira also discussed the ethical dilemmas of confidentiality, as many people do not want to know their status or the status of their partners.

Zomba HIV/AIDS legal clinic. This discussion occurred within a community-based organization located in Zomba. Chanco students involved with the HIV/AIDS legal clinic facilitated the discussion. The leaders of the community-based organization introduced themselves and discussed their work at the clinic advocating for client's legal rights and better access to care. The students of Chanco volunteer and do not receive academic credit. In addition, the community based organization elaborated about their other services in the community, such as providing care for orphaned children.

Presentations from UMB. UMB students and faculty reciprocated with presentations on HIV issues from a US perspective. Topics discussed were treatment options for HIV/AIDS, reducing mother to child HIV transmission, connecting HIV-positive patients with resources, delaying the onset of AIDS-related physical disabilities, mechanism of action for antiretroviral therapy (ART), and preventing opportunistic infections and sterilization techniques. The UMB faculty members lectured on the implications of HIV/AIDS in international human rights law, the healthcare delivery system in the US, and the UMB HIV/AIDS legal clinic. The UMB faculty led a discussion on specific case studies related to HIV/AIDS in areas of criminal law, human rights, torts, and medical malpractice.

### **Data and Results from PACA in Mfera**

Community mapping was the first exercise that each group completed. (The men's, women's, and children's maps can be found in the Appendix (see Appendix A, C, E). Because all of the men spoke English, no translator was required. The men's group prioritized establishing natural boundaries on the map, including mountains and the Shire River, as well as the main roads, East Bank Road and the M1 Road. The men's map (see Appendix A) featured the buildings of importance to the men, such as their places of employment – the Mfera health center and schools in the area – as well as other prominent features in the community, including boreholes (manual deep well water pump) and markets.

The men's camaraderie helped the UMB student facilitate the activity. The frequency mapping exercise entailed indicating how often they visited various places on the map. All of the men visited their homes, their places of work, and the market daily. The places visited weekly differed among the men and can be found in Appendix B. All of the men traveled to Blantyre once a month to withdraw money from the bank. The preference mapping activity indicated that men enjoyed going to their places of work, the lagoon, the market place, the borehole, Blantyre, and Chikhwawa. The men did not like the Shire River, because of the crocodiles that inhabit it; and nor did they enjoy going to the chief's house, because this implies that there is some sort of conflict in the village.

The contrast in the approach to this activity between the men and women's groups was significant. As discussed in the methods section, more time was spent on icebreakers and setting expectations with the women's group. The women began drawing their map as a group with the Shire River, the health center, and the location of their villages. The women also shared information about their villages as they drew the maps (for instance, indicating that the market days are Wednesday and Sunday). Since the majority of the women are illiterate, the group came to the consensus that they would use symbols to designate different places on the map, rather than writing words in English as the men did. All of the women visited the boreholes, markets, and gardens on a daily basis. The women revealed that they enjoyed going to church, watching football, playing netball, teaching nursery school, and cleaning. One woman enjoyed hosting and attending parties called "kitchen top-ups," in which each attendee brings kitchenware as a gift and the hostess makes food for everyone. Another woman enjoyed going to the disco at the secondary school that she attended. The women did not enjoy going to the mountains to retrieve firewood, selling things at the Thabwa market, traveling to the Mwaphezi River, or attending funerals. Some women enjoyed going to the garden, while others did not.

The women reported that they learned a great deal from this exercise. One thought echoed by four of the women was that they felt that the UMB students love the women and the students have warm hearts. One woman specifically mentioned that she was pleased that the UMB students ate traditional Malawian food alongside the community participants. Other notable comments from the women included:

- They learned about the distance between different villages in the Mfera catchment, from the women's homes and the friends of the women, and between important buildings and areas in the community
- One woman learned about nursery schools, churches, and boreholes that she did not know of before this exercise
- Another woman learned about a bank that existed in the community
- Another woman stated that she had never seen a map other than the map of Malawi. Until this activity, she was not aware that a community could have its own map
- Multiple women mentioned that they learned how they spend their time and are now able to see the big picture of their schedules
- The women agreed that it was good for them to learn more about their community through this project

Finally, the UMB facilitators also shared what they learned: Malawian women are strong and are the center of the family and the women have to bring their young children with them everywhere.

The UMB facilitators who worked with the children's group took a different approach since the children had trouble conceptually understanding what a map of the community would look like. Unlike the men and women's maps, the children's maps represented only the places in their community that they considered to be important. (The children's individual maps can be found in Appendix E.) The places that most of the children visited daily were their homes, their schools, the football field, netball grounds, and boreholes. Many children went to church and the markets on a weekly basis, whereas they visited the Mfera Health Center monthly. The preference mapping activity revealed that likes and dislikes were unique to each child. At the end of the exercise, the children stated that they learned how to use a key on a map and became more aware of the distance between places in their community.

Once the men, women, and children shared their maps with each other, they reflected upon what they learned from the other groups. The following are a summary of participant's responses:

- The women learned about the lagoon in Mfera through the men's map, and they learned that it was possible for men to purchase food in the markets, though in their families it was a role traditionally done by women.
- The women also became more aware about the places where men go to drink alcohol and relax, and why men did not enjoy going to the Shire River. The women also learned that children enjoy playing sports and that exercise is important to them.
- The men were impressed by the women's artistic skills and ability to use symbols on their map. One man noted that the women's map was "beautiful."
- The men also realized the value in teaching children to perform these activities.
- The children learned about markets and other buildings in the village of which they were previously unaware.

Seasonal Calendar. The different groups had varying conceptions of when the New Year starts as well the number of seasons in the year. The men's group based their seasonal calendar on spring, summer, and winter. A range of topics were proposed and adopted to the seasonal calendar including weather, farming, animal husbandry, vacations, water borne diseases, and malaria. The months of spring included January, February, and March. Winter included the months of April to July. The summer months ranged from August to December. Concerning the weather, spring featured the greatest amount of precipitation, while winter was the driest with the least amount of daylight. Summer was the windiest with the greatest amount of thunderstorms, and it also had the longest days.

The second topic that was covered was farming. During the spring, the farmers weeded and applied insecticide. In April, the farmers harvested their winter crops and prepared the soil for the summer crops. In May, the winter crops were continually harvested while the summer crops were planted. In June and July, the crops were thinned and insecticide was applied. In August, the summer crops were harvested and the soil prepared for the spring crops. In September and October the soil was harvested and the seeds planted. November and December included the thinning of crops and

application of insecticide. The third topic that was covered was animal husbandry. In January and February, animals graze and were noted to die from infection. The fourth topic that was discussed was the periods of vacation. The months of vacation included April, July, August, and December. The months of school testing included May and June.

Though the women debated about the seasonal calendar for some time, they decided upon the following seasons:

- February, March, and April: wet season
- May, June, July, August, September, and October: dry season
- November, December, and January: transitional season

During the rainy season, the women stated that they did a great deal of rice transplanting. During March and April, women prepared the ground for the next round of planting. In May and June, the women planted maize. The women also noted that the months of May, June, and July were so cold that they went to bed earlier and woke up later because of the weather. August, September, and October were particularly hot; the heat was so strong that it makes them feel fatigued and weak. In September, the women planted a variety of crops, including maize, beans, cotton, pigeon peas, sorghum, rice, and ground nuts. Transitional season was when women began preparations to grow plants in their gardens before the rainy season arrived. The women planted many types of vegetables in November. The women explained that in December, they must remove weeds from their gardens. There was confusion between the UMB students and the women's group regarding the exact months of each season, which was not fully clarified.

Like the women, the children experienced some difficulty identifying when the seasons changed. However, they decided on the following calendar:

- January: sometimes wet, sometimes dry
- February, March, and April: hot and dry
- May, June, and July: cold and dry
- August and September: hot and dry
- October, November, and December: rainy/planting season

They explained that the major difference between rainy season and dry season was that during rainy season, they went to the garden to help their parent's plant crops, such as maize and rice. The children were not in agreement regarding when they attended school or were on vacation. They stated that they were in school from January through July and on break for the remainder of the year. However, when the three groups joined to present their PACA activities to each other, one of the teachers in the men's group corrected their schedule. He stated that the children were only on break from July through September. Clearly, there were differences among the men's, women's, and

children's seasonal calendars. The possible reasons for these differences, including language and translation issues is discussed in the limitations and discussion section.

Health Calendar. The HSAs in the men's group took the lead in creating the health calendar. Because of their education and professions, they were able to discuss the patterns of a variety of illnesses. The men stated that some of these patterns were not evidence-based, but instead based on their observations. The HSAs noted the following patterns based on suggestions from the UMB student facilitators:

- Births: January, February, March

The men postulated that April, May, and June is "mating season" because during the cold months, men and women sleep closer together.

- Malaria: January, February, and especially in March

The men reported that the stagnant water during the rainy season served as breeding grounds for mosquitoes, leading to the increased incidence in malaria.

- Nausea/Vomiting/Diarrhea: January, February, March, and April

The HSAs stated that there was often not enough food or poorly prepared food during the rainy season.

- Sexually transmitted infections: April, May, and June
- Colds and flu-like symptoms: April, May, June, and July
- Pneumonia: April, May, June, and July

Pneumonia was a particular problem in the cold months for children under 5 years old.

- Chicken pox/Shingles: mid-August, September, October
- Trachoma: August, September, October, November, and December
- Cholera: October, November, December, January, February, and March
- Infant mortality: November, December, January, February, and March

The men stated that malnutrition was a leading cause of infant mortality, and there was not enough food during this time of year.

- Tuberculosis: year-round
- HIV/AIDS: year-round
- Deaths: year-round

The women's group did not have as thorough of a health calendar, perhaps because none of the women worked in the health professions. However, they listed the following patterns:

- Malaria: January, February, and March
- Diarrhea: January, February, and March
- Cholera: January, February, and March
- Asthma: April, May, June, and July
- Yellow fever: May, June, July, August, September, and October

Note: Yellow fever is not endemic in Malawi, but one woman reported that she had it.

- Headaches: August, September, and October
- Colds: November
- Tuberculosis: year-round
- Births: year-round
- The women stated that chicken pox is not common

The UMB students also asked the women about their menstrual cycles. Though the women did not know when puberty started for boys, they stated that ages 12-14 were typical for a girl to begin menstruating. The women stated that at times, they went to the health center for pain medication for cramps. Women used cloths, as sanitary napkins and tampons were not available. One woman reported eating many vegetables during her period. The women stated that they do not go to the garden if they are menstruating because of the fatigue. The women also shared information regarding breastfeeding. They stated that they breastfed their children up until two years of age, though they introduced porridge into their children's diets after six months.

Daily Schedule. The men's daily schedules can be found in Appendix H. The men noted very specific times on their list of activities. The accuracy of the times listed varied. For instance, though the men listed specific times when they awoke, it was explained that it was by the rooster call, and not by an alarm clock. However, some men confirmed that they use their mobile phones to note the time, whereas others were confident of the times because their routines had become habit. As shown by the individual calendars, from Monday through Friday, the men spent most of their days at work and evenings at their homes. On the weekends, they spent more time relaxing, going to the recreation center, and drinking with their friends. The married men have their meals prepared for them by their wives, whereas the unmarried man must purchase his food and cook it himself.

The women's daily schedules can be found in Appendix I. Only some of the women had cell phones, so there was not an exact way to confirm that the times on the schedules were accurate. The women's work during the day included volunteering at the nursery school, going to the garden, running their businesses, and performing chores, including cooking, cleaning, and going to the boreholes to fetch water. On the weekends, women had more time to go to the gardens. Some of the women stated that their schedules changed depending on the season, as noted above in the Seasonal Calendar section. The women also created a hypothetical daily schedule for the men found in Appendix J. The women expressed that they learned about each other's daily duties and activities. One woman also emphasized the importance of keeping a daily schedule and following it in order to be aware of one's jobs and workload.

The children, like the other two groups, completed the same exercise. Each child stated his or her daily schedule on school days (see Appendix K). Only one child recited her schedule on the weekends, as the other children stated that their weekends followed the same pattern. Generally, the children spent more time playing on the grounds during the weekend than they did during school days. Upon sharing their daily schedules with each other, both the women's and children's groups remarked that they wished men were home with their families more often. The men's group expressed approval that the children had completed their schedules in such an organized manner.

Needs Assessment. The men's group created a lengthy "needs and wishes" list that focused mainly on their professions, but also incorporated the needs of their community (see Appendix L). The two HSAs and the three schoolteachers prioritized the needs. The first three needs were the same for both professional groups:

- Ambulance

The current ambulance was in use for all of East Bank Road, which included at least eight clinics, so it could take hours to arrive. The government is responsible for paying for the ambulance, so the men would need to ask their Member of Parliament (MP) responsible for their catchment for the funds. However, they stated that the MP was too busy to prioritize this need.

- More staff housing

There were only five staff houses at the health clinic, and only two out of the fifteen teachers were provided housing, so health workers who were not given housing traveled longer distances to work. The men believed that bicycling or walking this distance fatigued them so that they were not able to work to the best of their abilities.

- New roofs for the health center and schools

During the rainy season, the health center and the schools were forced to close certain rooms because of flooding caused by the leaky roofs.

The men all agreed on the top 3 needs, but then the HSAs and teachers prioritized differently. The following needs were prioritized according to the HSAs, in this order:

- Mortuary for the health center

The health center did not have a specific place to keep patients who had passed away while their families traveled to the clinic to claim the bodies. As a result, they were sometimes forced to keep the bodies of those who have passed in the same room as patients. They also lacked any resources to preserve the bodies, which was necessary because sometimes it took families a few days to reach the health center.

- Protective gear (of the same importance as the mortuary)

The HSAs expressed that they needed more protective gear, such as gloves, gowns, raincoats, boots, and masks because they usually lacked standard medical supplies.

- Bicycle/motorcycle

The HSAs required a “push bike” (bicycle) or a motorcycle in order to reach remote villages that fell within the Mfera health center’s catchment. The HSAs were required to deliver medication and vaccinations to health posts throughout the area on a monthly basis though some posts and centers were over 70 kilometers away.

The teachers prioritized the following needs, in this order:

- Sanitations and toilets

The schools did not have enough toilets for all of the children, and the toilets that existed were unclean.

- School feeding program, especially for the schools in Thabwa and Mfera

The schoolteachers explained that some neighboring schools had a feeding program that provided porridge in the morning as well as lunch, which resulted in their enrollment skyrocketing. The teachers emphasized that hunger made it difficult for students to concentrate, and offering a feeding program would enable the students to learn more and encourage more children to attend school.

- First aid kits in schools

Students sometimes get injured playing sports, and they then have to travel to the health center to get care because there were no medical supplies at the schools. The schoolteachers also requested painkillers in order to help children who get headaches from “critical thinking activities.” The teachers have not received training in first aid administration, but they stated that they “know from experience.”

- Stretcher

There was only one portable stretcher at the Mfera health center, but the wheels had been broken since 2008. The lack of stretcher meant that people carried the bodies of their loved ones who passed away over their heads back to their homes.

The men listed more needs that were not prioritized and elaborated further on why they were necessities rather than desires:

- Beds for the health center

There were only 8 beds in the health center, not including the 3 beds in the maternity ward. The health center had rooms not being used to see patients because there were not enough beds. There was also a need for more cholera beds, but this need was not deemed as important as acquiring more regular patient beds.

- Firehouse

Mfera had not experienced a fire, but another health center had a fire in the maternity ward and the men would like to prevent the same from occurring in Mfera. No one in the community had been trained on how to use a fire extinguisher or how to put out a fire, though community members used water, sand, and blankets in the past.

- Pave East Bank Road

The dirt road takes three times as long to traverse than if it were paved, and the road is nearly impossible to traverse during the rainy season.

- Transformer

The transformer near the primary school was broken because someone stole oil out of it, as there is no committee that protects the transformer. As a result, the elementary school no longer had electricity. Because the water pump at school no longer functioned, children must walk great distances to obtain water. The community had requested another one over four months ago, but the men did not know the status of this request.

- Solar panel

The solar panel at the health center was stolen. The men stated that if it were to be replaced, they would also require three security guards to ensure that it would not be stolen again.

- Under 5 structure at clinic

The men explained that they would like the clinic to expand so that they could better serve patients under the age of five. The Under 5 clinic was being held under trees outside of the clinic.

- Sports equipment (moved from the “wishes” to “needs” column)

The men indicated a need for more sports equipment at the health center and the schools to provide children with the opportunity for more physical activity and entertainment.

- Functional boreholes

The schools represented by the teachers did not have functional boreholes, so it was difficult for the kids to get access to water. The lack of water also led to poor sanitary conditions.

- Access to internet on phones

The men wanted Internet on their phones in order to enhance communication and increase access to information for their own education and for others in the community. They believed that they would be able to better communicate with higher-level authorities if they were able to send e-mails.

The men's wishes were not prioritized and can be found in Appendix L. The group expressed that this exercise taught them many important lessons:

- The HSAs and teachers learned what the other profession needed and wanted in order to improve their community.
- All of the men learned that if they lack something they require, they need to address the problem. One participant stated, "A problem shared is half-solved."

The UMB students who facilitated this conversation encouraged the men to come up with ideas on how they could seek solutions rather than focusing on acquiring donations from outside groups. When asked to predict the lists of the other groups, the men anticipated that the women's and children's needs and wishes would not be as representative of the needs of the entire community.

The women's group did not prioritize their needs and wishes (see Appendix M), but upon presenting their results to the other two groups, each woman was asked to name the need most important to her. Two women stated the need to have their own business. Two other women both wanted a "good house," which they defined as being made of brick, cement, having a metal roof with electricity and running water. The fifth woman required two cows. Overall, the women's needs were representative of the issues that they encountered while performing their daily duties, though they did include some issues that affected other members of the community.

The children's list was thorough and encompassed four areas of their lives: school, home, the field/playground, and the health center (see Appendix N). The children received positive feedback from the community about their list. One of the teachers in the men's group remarked that this exercise allowed the students to think more broadly about the needs of their community and encouraged them to become more responsible.

After the children heard about the men's and women's results from the needs assessment, they offered their opinions on which needs were most important:

- Ambulance

One child explained that though the ambulance was not on the children's list, it is also of their concern because they may become sick and require an ambulance to be transferred to the district hospital

- First aid kits
- Bicycles

The students desired bicycles not only for the HSAs, but also for their own needs

- Library

The library was not on the children's list, but one student commented that acquiring a library for the schools would benefit himself, his peers, and future children

- Nursery school fence

One member of the children's group remarked that she often saw young children who belonged in the nursery school out on the roadside; therefore, she prioritized building a fence around the nursery school in order to keep the young children safe

### **Discussion**

The objective of this paper is to discuss in detail the two interprofessional projects conducted by UMB students in the context of transdisciplinary learning so that it may serve as a springboard for further study in interdisciplinary global health research. The UMB students aimed to show great appreciation and respect to the Malawian people, and create lasting collaborative relationships for the continued exchange of information. The UMB law faculty members ended the first part of the project by sponsoring a lunch involving Chanco faculty and students, which provided a forum for future collaborations. For example, UMB students possibly submitting articles to Chanco's upcoming first law journal featuring social justice and human rights. At the conclusion of the second part of the project, the UMB students drafted a proposal in cooperation with the Mfera community to address some of the needs revealed in the PACA activities. UMB students recognize the need for the development of a continued relationship with both the Chanco students and the Mfera community.

The GHIC Malawian experience lends itself to new ways of thinking because students worked and lived together in a developing country. Being facilitators in this research helped prepare the UMB students to recognize the importance of research in the field of global health and help them to interrelate their professional perspectives. The project highlighted the impact of poverty on basic human rights and community health needs. This project also illustrated the importance of integrating medical, legal, and social knowledge to develop new perspectives to best address the community needs.

The impetus for this project was how best to incorporate interdisciplinary research groups into global health and to show how UMB GHIC Malawi Project 2013 has used all three models to examine the benefits and pitfalls of each approach. It is critical to first defined the following four terms: multiple disciplinary, multidisciplinary, interdisciplinary, and transdisciplinary. Dr. Bernard Choi of the Public Health Agency of Canada (Choi &, 2007), has suggested the following definitions:

Multidisciplinary refers to different (hence “multi”) disciplines that are working on a problem in parallel or sequentially, and without challenging their disciplinary boundaries; this approach draws on knowledge from different disciplines but stays within the boundaries of those fields. Interdisciplinary analyzes, synthesizes and harmonizes links between disciplines into a coordinated and coherent whole; interdisciplinary brings about the reciprocal interaction between (hence “inter”) disciplines, necessitating blurring of disciplinary boundaries, in order to generate new common methodologies, perspectives, knowledge, or even new disciplines. Transdisciplinary integrates the natural, social and health sciences in a humanities context, and in so doing transcends each of their traditional boundaries; transdisciplinary involves scientists from different disciplines as well as nonscientists and other stakeholders and, through role release and role expansion, transcends (hence “trans”) the disciplinary boundaries to look at the dynamics of whole systems in a holistic way. (pg.355)

An apt analogy that helps in visualizing these approaches is a food example. Multidisciplinary is a heterogeneous mixture of disciplines like a fruit salad with each ingredient distinctly separate from each other; interdisciplinary is similar to a fondue where all the ingredients start to merge into each other; transdisciplinary is analogous to a cake where there is no distinction between the various ingredients. If the exact nature of a multiple disciplinary effort is not known, the specific terms multidisciplinary, interdisciplinary and transdisciplinary should be avoided, and the general term multiple disciplinary used instead (Choi &Pak, 2006). The GHIC Malawian experience illustrated the transition of the UMB research team from a multidisciplinary group interaction to a more transdisciplinary group model.

### **Multidisciplinary approach**

The UMB students served as representatives of their respective disciplines in the project and were required to meet biweekly in a series of pre-departure meetings (a total of 6 sessions) at UMB. Students presented to each other on a variety of topics concerning their own profession’s perspective of global health, ranging from code of ethics to addressing patients with HIV/AIDS. In addition, students were briefed on community mapping, cultural competency, and previous groups’ experiences in Malawi. Guest speakers from Law, Social Work, and Medicine lectured on HIV/AIDS issues in Malawi.

These meetings encouraged each member to learn more about his or her discipline through preparation for the presentations, followed by the dissemination of information to those outside of his/her field via the actual presentation. At this stage, the project remained multidisciplinary: each person worked on a particular topic separately then presented to the group from an individual perspective for the exchange of information.

### **Interdisciplinary approach**

There was an amount of interdisciplinary discussions following each talk. During the lengthy interdisciplinary discussions, each participant was encouraged to contribute and give their perspective on the issue at hand. Malawian law students argued positions by citing relevant sections of current and upcoming laws. Chanco and UMB Law faculty members served to facilitate discussions, offer counterpoints, and encourage alternative perspectives; the UMB team augmented the discussion with information and data used to solve similar issues in the US. The boundaries between the various disciplines naturally began to dissolve because of the increased complexity and multifaceted nature of HIV/AIDS legal issues.

### **Transdisciplinary approach**

During the PACA portion of the project, the UMB team worked in rotating pairs in order to facilitate community discussions. For the overall success of this project, it was necessary for each member of the UMB team to leave the boundaries of his or her respective discipline. This project became transdisciplinary in nature because no one profession was uniquely qualified to conduct this type of research. The solvent of a mutually novel experience dissolved the boundary lines between all of the disciplines.

### **Social Determinants of Health**

The poor health of Malawians is evidenced in the low life expectancy, high mortality rate, and high prevalence of disease. Life expectancy at birth is quite low: 51/54 (WHO, 2012). The under five-mortality rate is 112 per 1,000 and the maternal mortality rate is 675 per 100,000 live births (WHO, 2012). HIV/AIDS, tuberculosis, and malaria are significant concerns. The majority of Malawians live in poverty, with a gross national income per capita of just \$753 (WHO, 2012).

Understanding the complex forces involved in causing these health disparities is the first step in designing effective public health interventions. The Social Determinants of Health (SDOH) model was developed by the WHO to illustrate the causal pathways that lead to poor health outcomes. The model begins with the structural determinants of health that comprise the socioeconomic and political context. These factors include governance, macroeconomic policies, social policies, public policies, and culture/societal values. The next level of determinants includes one's socioeconomic position. Social class, gender, ethnicity, education, occupation, and income are the important considerations in this category. The intermediary determinants of health include material circumstances, behavior, biology, and psychosocial factors. Additional intermediary determinants are social cohesion, social capital, and the health system. Each of these three levels of structural and social determinants impact health inequities.

Figure 1 illustrates this model as it applies to the health inequities in Malawi. Structural determinants of note include cultural norms, economic inequality, relative poverty, globalization, poor infrastructure, and corruption (Mwapasa, Kadzandira, Jenniskens, Plummer, & Wolmarans, 2011). These structural determinants influence one's social position including the low socioeconomic status of women, gender roles, gender inequality, gender-based violence, and an inadequate education system (Underwood, Skinner, Osman, & Schwandt, 2011). Each of these determinants leads to the material circumstances of one's life that in turn cause health inequities. An additional intermediary determinant of health in Malawi is the poor health care system. For instance, there are insufficient human resources for health, limited supervision of health care staff, poor drug supply chain, and a lack of laboratory services (Mwapasa et al., 2011). The WHO (2012), reports that there are just two physicians and only 38 nurses per 100,000 populations.

The culmination of the PACA project at the Mfera Health Center was a final feedback presentation by the UMB students in combination with a community celebration provided by UMB students, faculty, and the Blantyre Malaria Project (BMP) as an expression of thanks and gratitude for the community's cooperation. Formal invitations were extended to the TAs and specific chiefs of the area. The results of the study were presented and the findings were distributed to members of the community. Booklets outlining the findings were printed and distributed to the health center, the district hospital, and the village leaders. The traditional musicians and dancers of the area highlighted the celebration with performances. The collaborative effort was also commemorated with a meal provided by UMB students and faculty and shared by the invited chiefs, TA, study participants, UMB students and the administrators of the project. The interprofessional UMB group has also concluded that many of the Mfera community's needs and wishes are basic human rights. For instance, clean water, basic sanitation, adequate access to nutritious food, and a safe, sound house are requirements for healthy living. When all of the women noted that they all wanted "a beautiful house," as translated in English, it became evident that their homes were not comforting or even further, inadequate for human habitation that they were not satisfied with their homes.

### **Limitations and Recommendations**

The completion of this project challenged and created much discussion among the three communities: UMB, Chanco, and the Mfera community. This section will focus on discussing the limitations and recommendation for future considerations.

#### **Chanco Limitations and Recommendations**

Overall, we noted few limitations to the law portions of the project; however, one issue that stood out was the lack of connection between the law portion and PACA activities. This lack of continuity is of concern. This connection would have created a better inter-cultural and inter-professional exchange of experiences. Including the Chanco law students as translators in the Mfera project could augment the integration of the two project components. Another suggestion would be to co-facilitate the PACA activities with one UMB and one Chanco law student. Including the Malawian law students would have enriched the interdisciplinary learning experience. Collaborating on a project with

a common goal would enhance learning methods not previously implemented by both parties. Another limitation worth considering was the lack of adequate time for students to participate in the dialogue regarding the professional perspectives of HIV/AIDS.

### **UMB Limitations and Recommendations**

The discussion of the limitations begins with the selection process during which GHIC selected students from each of the professional schools. The selection process was a critical step because those selected for the project formulated the foundational structure of the team (Choi & Pak, 2007). Choi & Pak (2008), assert that it was equally important to understand how the participating disciplines would interact based on their “epistemological distance.” The “epistemological distance” indicates that those disciplines of similar knowledge base tend to cluster together, thereby creating stronger unity within these disciplines (Choi & Pak, 2008). Dentistry, nursing, pharmacy, and medicine share the same “knowledge subsystems,” in contrast to social work and law. This difference in shared knowledge indirectly created a disconnect and power imbalance with the other disciplines, which resulted in problems with expectations and teamwork (Choi & Pak, 2008). It is recommended that other students with different knowledge subsystems be added to the group to diversify the team, such as an MBA. This addition would add different perspectives and viewpoints thereby further enriching the interdisciplinary team.

A second limitation was the content of the pre-departure mandatory GHIC meetings. The effectiveness of the project could be enhanced through better fostering of group cohesion. It soon became evident that the group dynamic required more attention to communication and conflict management skills. Therefore, it is recommended that a more deliberate and robust plan be developed that promotes pre-departure group unity. An example may consist of a weekend retreat to get to know each other and participate in specific team building activities. In addition, it would greatly benefit the group to complete the Myers-Briggs assessment to have a better understanding of each team member’s personality type (Lakhani, Benzies, & Hayden, 2012; Ring, 2008). These results could increase individual self-awareness as well as enhance communication skills. The information obtained from the assessment could also be used to develop and communicate clear goals and expectations. Communication, trust and respect are vital components of any successful team dynamic because they strengthen and empower the team, allowing participants to exchange ideas and criticisms in a safe and open environment. More time should also be spent on developing the group’s objectives, reading the appropriate background material, and including specific methodology related to the project. It would be helpful to briefly review the differences between qualitative and quantitative research articles (Choi, & Pak, 2007). Finally, it is recommended that in order to enhance the students’ ability to enter a culture different from their own, more research about Malawi should be conducted prior to departure.

Additionally, having one or two faculty members serve, as on-site mentors for the entirety of the project would provide consistency in leadership as well as foster positive outcomes in the group dynamic. This strategy would result in more cohesive expectations for the cohort of students and a more unified vision of the project. It would also allow more effective time management and increase

efficiency, as the group would spend less time updating each new faculty member on the progress of the program.

### **Mfera Limitations and Recommendations**

Within the PACA activities at the Mfera Health Center, several limitations were noted. When possible, recommendations were made to mitigate the challenges and restrictions. Travel time and transportation costs had a significant negative effect on the project both for the UMB students and the participants. The UMB students traveled two hours per day. Most participants walked or bicycled several kilometers to the health center each day.

A second significant limitation was the language barrier. None of the UMB students spoke Chichewa and most of the participants did not speak fluent English. In the men's group, in which every participant spoke English, the depth of detail of the data collected far exceeded that of the other two groups. Although interpreters were available, the quality of the interpretation was less than ideal. The interpreters did not appear to be fluent in English nor did they appear to have any training in interpreting skills. The UMB students also noted that the presence of the male interpreter in the female participants group appeared to impede open communication among the women. A recommendation for the future would be to identify and train interpreters in advance of the project.

The selection of participants was a considerable limitation. The exact methodology used by the health center staff to choose participants was unclear. However, the selection was a population of convenience. For instance, the children's group included a daughter of the head HSA of the health center. As a result, the results could not be generalizable to the entire Chikhwawa district. The men's group was comprised of five men with full-time professional occupations. Men who farm or otherwise do not work in a salaried position were not represented in the project.

Anecdotal evidence also suggested that participants were limited in their ability to be fully open and honest during PACA activities. For instance, the HSA participants may have been reluctant to include their accurate working hours during the daily schedule activity. Their responses were recorded and any deviation from their expected schedule could have affected their employment.

The women's group in particular was also limited by the presence of their children. One child accompanied each woman between the ages of one and five. The children often required feeding, changing, or other attention that distracted the participants from the PACA activities. In the future, the project could arrange childcare for parents with young children. The needs assessment proved challenging in the women's group as well. The group facilitators found it difficult to explain the concepts of needs and wishes and then to elicit responses from the women, perhaps because the women were not accustomed to being asked questions about their needs and desires.

Limitations specific to the children's group included the school schedule. While the men and women began at 9 am, the children attended school in the morning and usually arrived at the health center around 11 am. As a result, the children's group had significantly less time to complete the PACA activities. These scheduling issues should be given more consideration in the future. For example, the

children's group could meet after lunch to allow a comparable amount of time to complete the project activities. The daily schedule activity was also limited by the lack of access to clocks.

A final limitation for the PACA project was the availability of only one reporter to record for three concurrent groups. The data collected was not equal across the groups, which may have influenced the results and conclusions.

### **Reflections on the Interprofessional Nature of the Project**

An integral feature to the GHIC project is the interprofessional approach to the research in complex global health issues and the interdisciplinary interaction within the communities. As previously mentioned, the research team consisted of seven students, one student each from the University of Maryland's School of Pharmacy, Dentistry, Social Work, Nursing, Law, and two from the School of Medicine, representing medicine and physical therapy. In addition, five expert faculty members accompanied the students for one to two week-sequenced intervals to provide expertise and management.

The project entailed six pre-departure meetings during which time the students presented information regarding their profession's code of ethics, role in global health, as well as their discipline's approach to treatment of patient's with HIV/AIDS. In addition, the GHIC faculty mentors led the students in various activities in cultural connectivity, cultural mapping, and global health, in preparation for the project in Malawi. Once on-site, the students participated in series interdisciplinary lectures, presentations, and case studies on the topics of human rights and HIV/AIDS with the law students from Chancellor College of Law. This included meetings with the Mothers to Mothers group, lecturers from various disciplines, including pharmacy and psychology, visiting the College of Law HIV Legal Clinic and the Head Court of Blantyre, as well as the student's presentations on the approach to care in the US. In order to study the complex health system in Malawi, students toured the Zomba ARV Clinic, Ndirandi Health Clinic, Mfera Health Clinic, the Chikhwawa District Hospital, and Queens Hospital, looking at connections between disciplines as well as interconnections in the health system, and the role of HIV/AIDS. A significant portion of the research time was allocated to the previously outlined PACA activities in the rural village of the Mfera Community, in which the students facilitated small group discussions amongst community members, highlighting topics such as needs and community mapping.

The series of activities with the law school promoted the interdisciplinary forum, while the community mapping highlighting transdisciplinary work, in which the student's integrated their discipline with not only working together, but doing so under the constraints of a different culture and language. As noted in 2012's GHIC Team Report, the benefits to health care delivery from an interdisciplinary approach have been proven.

It is important to note that this year's research as selected by the faculty members of the GHIC project was a departure from previous year's objective and policy based research, as it was primarily a multi-step, qualitative study of interdisciplinary and cultural interactions based upon direct interaction within the community, and the discussions that followed that interaction. Because of this approach, student's were able to step outside the clinical-realm to find a common understanding with peers to

complete the tasks, as well promoting the culture of group work in order to complete community work that was foreign to most of the students. Due to the multifaceted nature of the research that the students performed, the student's were also able to note how different professions, genders, and roles within the health care system interacted to provide solutions to the health care problems affecting the country.

In conclusion, student's completed a reflective essay detailing the personal and professional impact of the interdisciplinary approach to the project. Four elements were highlighted: the value of an interprofessional approach to a complex global health care problem; the value of the project to understanding professional adaptation to interprofessional and intercultural work; the role of the project in promoting understanding and respect for other disciplines; and the impact of the project on student's individual growth in their own profession.

#### 1. The Value of an Interprofessional Approach to a Complex Global Health Care Problem

The student reflective pieces noted the advantages of an interdisciplinary approach to the intercultural work during their study of HIV/AIDS and the complex needs of a rural community. Student's felt that the interprofessional team was better able to integrate health responses in ways that are appropriate within the community in respect to the community's culture and value sets.

*[Law student] I think that the first step to better integrating health responses is to discuss with the community their ideas, their culture and their needs for health and establishing a trusting relationship so that the community will be open to discussing these ideas. [Social work student] As the Social Determinants of Health Model indicates, numerous levels of factors contribute to health inequalities. Policies, culture, economics, and history are just a few of the social determinants of health. Due to this breadth, an interdisciplinary team is best suited to address the root causes of health disparities in a complete and adequate manner. [Medical student] Just as a physician may not understand the nuances of a particular community and its approach to medicine, a social worker may not know the best medication to prescribe to someone struggling with an illness. It is absolutely crucial to understand all of the determinants of health, not just the physiological aspects, to determine how to best treat a patient and a community in a culturally appropriate way. This type of holistic approach requires input from a variety of disciplines, including but not limited to social work, law, and a variety of health professionals. [Nursing student] Understanding the burden of disease is complex and often further challenged when addressing cultural and value differences from that of our own. The inter-professional team addressed these challenges by conducting an internal assessment of our own values and cultural beliefs in addition to learning and submerging into the new culture. These responses either realize what progress was being made through the different strategies or if nothing was being done to address this issue. [Physical Therapy student] We each perceive the world through the lens of our own culture, which includes our profession. Therefore, by working together in an integrated team, the group was able to approach the issue in a holistic manner, looking not only at the medical, but the psychological, and legal aspects that are involved in patient care. The team was quick to point out differences, as well as similarities, and problem solve to see how we could best approach the project in a manner that best represented all disciplines, with the priority being what was best for the community and individual.*

*[Dental student] The interprofessional team can better integrate health responses more appropriately by considering the scope of practice and the responsibilities of health care providers. The realm of responsibility of each practitioner will often parallel the cultural and value sets of the community.*

*Through an understanding of the professional, one can better comprehend the nature of the community.*

*[Pharmacy student] Interprofessional teams have an expanded perspective, which can be used to solve complex health care problems. Each of our professions represents a discipline that brings with it certain skills, perspectives, and tools for acquiring new knowledge. It is possible for any one of our professions to solve any problem that we faced during this international experience in Malawi. For example, a team of all lawyers could have easily worked on HIV/AIDS legal issues in Zomba, Malawi. However, an optimal solution is potentially more readily attained in the framework of an interdisciplinary team. Continuing with the above-mentioned example, professionals outside of law introduced new ideas and concepts to the legal discussion that serve to fashion possible solutions. Oftentimes solutions are not considered simply because they were not thought of. The expanded perspective gained from an interprofessional team not only generates better ideas but ideas that are more likely to be culturally acceptable.*

## 2. The Value of the Project to Understanding Professional Adaption to Interprofessional and Intercultural Work

The GHIC team members recognized the importance of understanding behaviors and cultures for the delivery of their own professional skills. Student's felt they had personally and professionally adapted in reference to the culture. In addition, the other professions influenced how they saw their own profession.

*[Law student] There were specific professions that stood out in specific projects. For example, when we were presenting in the Chancellor School of Law, the audience was very interested in nursing and pharmacy. The first reason, from my observation, is that nurses in Malawi have the most contact with the patient from the clinical aspect of nursing because of a lack of resources. In the United States, in some settings this is similar. This affected how I saw the idea of medical malpractice because even though the doctor may have the least face time with the patient, he/she is the most liable but the concept of medical malpractice in Malawi seems to be more theoretical and less practical. In addition, I think pharmacy stood out because people were really curious about ARV's and its effect and importance on HIV.*

*[Social Work student] Much of the social work curriculum and training centers on building cultural responsiveness skills. As such, I felt well prepared to live and work in Malawi. Unfortunately, interdisciplinary skills are not a significant part of our education. Having participated in several interdisciplinary courses and campus experiences, I felt adequately prepared for this experience.*

*However, I see the need for more communications skills training so that people can work together in a more successful manner. [Medical student] Many people expect physicians to understand the molecular and physiological causes of disease and to know how to treat an illness. However, it is incredibly important for physicians and medical students to also understand how the practice of medicine may change in a low-resource setting. This experience reinforced my belief that physicians should be aware of all of the possible barriers to care and be cognizant of the social determinants of health.*

*[Nursing student] Recognizing the importance of understanding behaviors and cultures needs is a critical component that we explored through our discussion and interactions with the all of the different*

*disciplines. The other professions guided me to gain a better understanding of my profession and that of my colleagues by recognizing to effectively integrate their contributions and expertise. [Physical Therapy student] When I walked into the physiotherapy department I was shocked at how similar it was to something we would see at home- the ideas were the same, although the resources were not. The physios I was able to work with were creative with what they had; showing me that it was about the methods, and that a lot can be done in an under-resourced clinic. In addition, we learned about the role of a guardian in patient care, as well as local customs that effects how medical professionals work with patients. These cultural practices are integral to note in any setting prior to working with a patient, to make them feel most comfortable and empowered by their care. [Dental student] In a foreign setting and culture, my personal adaptation was contingent on the interdisciplinary setting. Through the emersion into an interdisciplinary/intercultural setting, I had to adapt both physically and mentally. Finding commonalities between the professions and the cultures was my key to successfully adapting. By finding that professional connection and human connection, I was able to see my role as a dentist in a new light. [Pharmacy student] One important way the other professions influence my view of pharmacy is by identifying areas of my knowledge that needs improvement. As a pharmacist, one of my responsibilities is to be a medication resource on a team and I noticed that each profession is interested in the answer to different questions. As an example to illustrate this difference for a particular ART, the doctor may want to know if alternatives are just as effective, a nurse may want to know if it can be co-administered with other ARTs, while the social worker is interested in the cost. I believe an understanding of these varying expectations will make me a better pharmacist.*

### 3. The Role of the Project in Promoting Understanding and Respect for Other Disciplines

In their reflections, the team felt strongly that they gained respect and understanding for other disciplines.

*[Law student] I learned that Social Work and Law view the world through access to justice. I also learned a lot about nursing and how they care for individuals who are not well and also advocate for their patients in their time of need. I learned the importance of the medical profession working together to meet the needs of the patient. [Social Work student] While my profession (Social Work) aims to combat social injustices, I do not always see that the law has the same goal. In this project, I was fortunate to meet several lawyers and law students who share my passion for and commitment to social justice. [Medical student] While physicians routinely interact with professionals from other disciplines, there are not many opportunities to establish these interprofessional relationships as a medical student. Through our interdisciplinary presentations, dinners, weekend excursions, and late-night conversations, I learned a great deal about the other disciplines represented on this trip. This project was an excellent opportunity to understand how integral each profession is in improving someone's health. [Nursing student] This project promoted my understanding and respect for other disciplines by fostering an environment where multiple disciplines could collaborate, share knowledge and learn from each other. We learned about our own personal and professional moral and ethical obligations; on how to create consensus and the importance on increasing advocacy in order to assist in improving the global health communities. [Physical Therapy student] Through the experiences and time spent together in this project, I learned about the commonality that the seven professions hold in regard to patient care and*

long-term objectives. Although some fields lay outside of the medical profession, all seven believed in advocating for the patient so that they could remain functional, healthy, and with basic human rights in the various arenas of their life. Some professions work from the bottom-up, as in basic health care needs such as medication and basic function, while others work from the top-down, with government and public health policy changes. In the end, we all meet in the middle to integrate our individual specialties to improve people's lives together. [Dental student] This project not only furthered my knowledge of the scope of practice of other professionals, but also increased my passion for dentistry. Knowing there are so many other passionate students in both the U.S. and the world amplified my own excitement for my own field. The scope of practice and role of the other professionals are unique in their own way. By living and learning with other professional students I have a firm grasp of the extent of each professionals work. Through this new understanding comes new respect. [Pharmacy student] My understanding has definitely been increased through the daily interaction, discussions, and brainstorming sessions with students from the other professions. Seeing problems through the eyes of different profession has forced me to positively challenge myself as well as my own discipline.

#### 4. The Impact of the Project on Student's Individual Growth in Their Own Profession

As a result of the interprofessional project, student's felt that they were not only personally impacted, but that they had grown professionally.

[Law student] After visiting the Chancellor College of Law and the legal clinic and spending time in legal classes, talking with students and professors, I gained a level of understanding about the legal system in Malawi that was far above my level of expectation. [Social Work student] I have grown and learned a great amount and am thankful for this amazing opportunity. I have gained insight into my strengths and weaknesses as a professional social worker. [Medical student] Before beginning this project, I had a strong interest in global health, but I did not have any long-term international working experience. This experience solidified my desire to spend time working abroad once I become a physician. I also learned a great deal about myself as well as the types of work that interest me. [Nursing student] This project personally touched my life in multiple ways through the participation and exchange in new knowledge and experiences, which have helped shape and expand my view of life outside the United States. One of the many lessons that I learned is how a strong nursing profession is critical for health services everywhere because nurses play a significant and critical role in achieving positive health outcome in the health care system. Through leadership, advocacy, mentoring, teaching and training, nursing increases the knowledge level, of individuals and communities locally and in rural areas. [Physical Therapy student] I take many lessons learned from this project, not only the need for further education and development in interdisciplinary work for all the professions represented, but also that there is a huge opportunity for American-trained physical therapists to volunteer their time abroad to exchange ideas, knowledge, and training with physiotherapists locally. In working with clinicians and educators, we can affect change on a very human level through promoting function and movement, as well as developing cross-cultural ties in this ever-diversifying global community. [Dental student] This project was my first experience truly living and working abroad. Through the actual emersion abroad in a new culture and among different professionals I was able to grow as both a professional student and a person. By connecting with individual Malawians, by learning about their lives, families, place of worship,

*and community, I can better understand where I am from and where I am going. With this newly acquired perspective I am revved to become the best dentist that I can possibly be. [Pharmacy student] This project impacted me personally in several ways. First, for an interdisciplinary team to be successful the team members should have a shared vision; I learned through this experience how to identify and articulate this vision. Secondly, this project has giving me experience in letting go of my own ideas—to offer them without any sense of attachment. Lastly, I am better able to identify good solutions expressed by individuals from other disciplines by judging solutions on their merits rather than their origin.*

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## Women's community map

An example of the maps, charts, lists made by the men, women, and children