Mabelle Arole Fellow Final Report

Comprehensive Rural Health Project

Lauren Sutherland

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Introduction

I first stepped on the campus of the Comprehensive Rural Health Project in January of 2015 as a public health student with the Elon University's winter term study abroad program. At this point in my life I thought I had everything laid out clearly; I had just received two acceptances from medical schools and was ready to get started with the next stage of my life. Though I was going to be going straight from completing my bachelor's degree to medical school, I was eager to get started. Yet, as I observed CRHP's programs and listened to lectures about their strategies for promoting health, I realized that I had much more to explore. While medical school would teach me the inner workings of the human body and how to take a good physical exam and history, it may not teach me how to promote health where people have almost no access to care. It wouldn't teach me how to prevent disease by mobilizing communities or how to recognize that hunger and unclean living conditions have just as much to do with illness as the pathogens themselves. This course is when I learned about the Mabelle Arole Fellowship and the experiences that it could offer me before starting medical school. The remainder of that spring was a whirlwind of thesis work, medical school decisions, and graduation and before I knew it I was on the plane to Mumbai wondering what I had gotten myself into. I had read everyone's final reports and asked the previous fellow as many questions as I could come up with, but could not have even imagined how much I would learn from this experience. Though it was often frustrating, I truly believe that I will be a better doctor and a better agent of change in the global heath community because of my time at Jamkhed. The people that I met and the experiences that I had were truly amazing, and I will draw on the things that I learned from them for the rest of my life.

Life at Jamkhed

After the completion of the summer course in July, I initially felt a bit lost. Used to having an outline of classes and exposure visits to structure my day, I now had the responsibility of filling my own schedule. I eventually found that my day-to-day life could vary dramatically based on what I was working on at the time. As a person who typically likes some daily structure, I occasionally found this frustrating but also enjoyed the stimulation of having variety in the project that I worked on and the flexibility to get it done on my own time.

I got in the habit of structuring my days based on the programs occurring on campus. Many mornings, I spent time in the preschool watching the children while Meena went on preschool pick-up. This eventually became just as much comfort to me as it was help for her. Meena was always supportive and kind. Between talking with her and seeing the kids, my frustrations and concerns became more manageable. After visiting with her, I would go on rounds with Dr. Prashant, the inpatient physician, and Sandhi, my co-fellow. This helped me to

gain clinical skills and learn about the health challenges of individuals in the surrounding villages, both project and non-project. After rounds, I would usually observe outpatient clinic, go on a village visit, or work on any current projects. These observational experiences are usually when I learned the most. I learned from conversations with the doctors about challenges in their position, such as lack of funding for medications or poor adherence among their patients. I had the chance to observe report building and community mobilization in action as I watched the Mobile Health Team comfort a woman who lost her husband or support the VHW as she led a women's group. With this new knowledge and inspiration, I would then resume work on projects in the afternoon, potentially meeting with staff members or other intern/fellows to make progress on grants, develop surveys, or plan for our surgical camp.

During the busiest of times, such as during preparation of a surgical camp that we hosted in January, this schedule completely gave way to new tasks. During quieter times, however, the general structure helped me keep focused and ensured that even if I did not have a specific project running at the time, I could still accomplish my goals of connecting with staff and community members, gaining clinical skills, and learning about the challenges and strategies involved in promoting better health in areas with low access to care. Though I occasionally was overwhelmed with the lack of structure, I was thankful for what it taught me about making the most of a situation. My perception of what I defined as "productive work" changed as I learned to value my conversations with staff just as much (or maybe even more) as I valued a day of grant writing or data analysis. I am thankful for the variety of experiences and projects that I was able to work on throughout the course of my fellowship.

Projects

Diabetes Screening and Prevention

My most significant project throughout the year was researching, designing, and acquiring funding for a diabetes prevention program. As CRHP sees communicable disease rates fall with improvements in nutrition, sanitation, and health education, they have also found that non-communicable diseases like hypertension and diabetes have become more common. These diseases, unlike most communicable diseases, are caused by a myriad of factors and often require life-long monitoring and treatment. However, because many of the causes associated with these diseases are related to lifestyle, there are many opportunities for prevention through education and improvement of access to healthy options. Currently, Village Health Workers receive some education in causes of diabetes and are able to test urine for the presence of sugar through the use of Benedict's solution. Despite this screening tool being a technologically appropriate tool, requiring only the inexpensive solution, a test tube, and a fire to bring the solution to a boil, it does not allow the VHW to identify diabetic community members until they present with symptoms. Symptoms of diabetes, such as increased thirst or frequency of urination, do not present until after a person has been diabetic for an extended period and are often very vague. Diagnosing diabetes so late not only limits the opportunities for prevention, but also increases the risk of developing complications such as neuropathy, retinopathy or heart disease. To help communities surrounding Jamkhed better address the challenge of an increased prevalence of diabetes, CRHP would need to provide VHWs with tools for both screening and prevention.

By researching community-based diabetes screening tools, I found that identifying a cost-effective diabetes screening method was a common challenge across India and globally. To tackle this challenge, a group in Chennai developed the Indian Diabetic Risk Score, which uses five simple, non-invasive questions to identify risk factors and quantify risk of developing diabetes. This screening tool identifies those at the highest risk, allowing community health workers to recognize individuals who require referral for further testing and treatment. Beyond being a simple and reliable screening tool, this survey also engages the community in conversations about the risk factors, like physical activity and waist circumference, that can contribute to the development of diabetes. After talking to Ravi and the Mobile Health Team, we decided that this risk score could be a useful tool for our Village Health Workers. To evaluate whether or not the tool would be an accurate score for our communities, we decided to do a test-survey. This survey involved almost 200 individuals from 7 villages and compared risk score to random blood sugar values. Once a slight adjustment was made, the score was a great tool for identifying those at the highest risk. We also found that the Village Health Workers and community members were engaged and interested in the meaning of the score and how it related to their health.

After the screening tool was evaluated, we needed to find enough funding to support a full screening and prevention program. Since I had limited experience with applying for grants, this was a big learning experience for me. I first learned how challenging it was to identify appropriate grants. While there is a good deal of funding out there, it is often constrained with specific criteria and it felt like every promising option turned out to be limited to U.S. based organizations or due six months prior. Thankfully, I stumbled on a grant from the World Diabetes Foundation, which seemed like a perfect fit. Applying for the grant taught me a lot about the development, programming, monitoring, and evaluation of a program. It especially taught me about things like developing a budget and timeline and justifying it to an outside organization. The program was designed to last over three years, with the first year attributed to three-stage screening program (involving the use of the IDRS, blood sugar testing, and HbA1C evaluation) and the last two years for implementation of an educational community-group program to prevent and manage diabetes. It also includes the integration of diabetes education into our adolescent programs to promote long-term intergenerational change.

While applying for the grant and communicating with the organization during the decision process, I learned how to manage large organizational expectations while focusing on community-level work. I have begun to understand the complexities of international health and aid, as large organizations that create guidelines and distribute funds have universal health goals, but not necessarily a thorough understanding of the challenges and complexities faced on the community level. Seeing large international groups pose guidelines and expectations without working with communities to achieve them made me realize that I want to be involved in the international health community in the future in hopes of changing this incongruence.

I am so happy to report that our grant proposal was recently accepted. Though I have finished my fellowship, I am still involved in communication regarding final budgetary details

with the organization. I am excited to see the development of this program and look forward to working with the new Mabelle Arole Fellow in the transition.

Maternity Survey

In addition to my work on the diabetes grant, I had an opportunity to learn more about maternal and child health through developing and administering a hospital survey. As India faces high maternal and infant mortality rates due to lack of access to adequate prenatal and antenatal care, the government has been exploring strategies to increase use of health facilities. A recent initiative now requires that all deliveries occur at health institutions, rather than at home. While this scheme may increase hospital use among those who have access to healthcare, it does not address the myriad of problems that prevent women from seeking healthcare to begin with. It also does not allow for this health disparity to be bridged with programs that train skilled birth attendants to perform safe home deliveries. However, since CRHP focuses on working with the government and other organizations to promote better health, the decision was made to introduce a free delivery program at Julia Hospital to improve access to medical care in the region. This program means that CRHP sees more deliveries than it has in the past few years.

To better understand the traditions and practices of the women coming for deliveries, Dr. Shobha and I developed a survey to be administered after delivery. The survey included questions about demographics, particularly focused on where the woman stayed during pregnancy, as well as questions about antenatal care visits, diet during pregnancy, traditions and family advice, and breastfeeding knowledge and practices. I administered the survey with the help of Dr. Patekar, one of the outpatient physicians at the hospital, from October until the beginning of March.

During the administration of the survey, there were many things that I found frustrating. I often looked at our small sample size, lack of control group (all surveys were conducted at Julia Hospital), unfocused survey purpose, and lack of consistent translation and was overwhelmed with the feeling that the results would not be useful, and that I was putting in all of that work for no reason. Yet, as I put together the results of the survey, I found that the responses taught us a lot about the women who come to the hospital and the challenges they face.

While the results may not be applicable to the larger community or demonstrative of comprehensive patterns in antenatal care, they are able to highlight areas where CRHP can work to improve care. It showed us that while most women reported taking iron and folic acid, 65% still had mild to moderate anemia. It showed that the most common issue during pregnancy was nausea and vomiting, which often led to them decreasing their food intake. And it showed that 30% had lack of knowledge related to breastfeeding options and best practices. It also showed that most women deliver in an area that is different from where they spend their pregnancy. Most women spent their pregnancy at their home with their husband and in-laws, but travelled to their mothers' homes during the 8^{th} or 9^{th} month. This poses a challenge for maintaining consistent antenatal care and adherence to proper antenatal practices, and demonstrates the importance of family traditions and practices in the health of the mother and baby.

After the completion of the survey, I had the opportunity to discuss these challenges and practices with a larger community by presenting with Dr. Shobha at the CME/Reorientation on Maternal Care and Naturopathy hosted by the National Institute of Naturopathy in Pune. During my presentation, I was able to show the results of the survey and the various challenges that it highlighted in providing comprehensive antenatal and post-natal care. I was also able to present on potential strategies for solving these gaps in care that involve an integration of various medical practices and the utilization of community health workers. I received great feedback and input on the survey and suggestions for future research directions. I also had the opportunity to watch one of our most experienced health workers, Sarubai, demonstrate safe deliveries during her presentation. I am constantly impressed by how our VHWs are not just leaders in their communities, but also leaders in the national and global health and development spheres.

While I often felt frustrated about the limitations of the survey, it gave me the opportunity to learn so much about maternal and child health and my own interest in the field. As we administered the survey, Dr. Patekar did not just translate, but instead initiated meaningful conversations with the mothers about their values and choices. This taught me so much about the motivations that influence a mother's choices during and after pregnancy. Dr. Patekar was also a great role model of how to provide compassionate and comprehensive care as he took the time to make mothers feel at ease and listen to their questions and concerns. Working on this survey also showed me how much I love working in the field of maternal and child health, an area that I had not had much experience in before. I look forward to exploring this field more in medical school with the skills and understanding that I gained in Jamkhed.

I also learned that valuable research takes on many forms. While I stressed over inadequate sample sizes and vague questions in the car ride home from the conference, Dr. Patekar turned around and told me how much the survey meant to him and how his practice as an antenatal care physician has changed because of it. This experience taught me the value of community health work with smaller impact and that even if research isn't applicable to larger areas, it can make meaningful changes in the lives of individuals. In my future career, I hope to work to address health challenges from multiple levels, from individual to international.

Surgical Camp

As a Mabelle Arole Fellow, you often have to have initiative to identify needs of CRHP and the community and devise strategies to address them. However, I learned that you also have to be flexible and open to providing whatever help is needed at a moment's notice. This was especially true in the fall as we were told about a surgical camp that CRHP would be hosting in January. In order to prepare for this camp we needed to recruit potential patients, aid in fundraising, communicate with the visiting surgeons, and inventory and order necessary surgical equipment. The other interns/fellows and I started going on village visits with the Mobile Health Team in order to identify potential patients for the surgical camp. This task showed me the importance of having a trusting relationship with the communities that you work in. To identify those who could be helped by the camp, we relied on VHWs and other community leaders. We then relied on the trust of the community members as MHT members gathered their stories and ensured them that we would call to follow up.

We translated these stories and sent them along to our partner, the Freedom from Poverty Foundation, who used them for fundraising. However, this task of identifying patients in villages and translating stories was not a very successful way to fundraise or prepare for the surgical camp. Collecting the stories surpassed the time and resources of the MHT as the goal was to obtain as many stories as possible within a short frame of time. Additionally, many of the community members that we identified in the village visits did not end up getting surgery. This could have been due to many factors, such as lack of transportation, migration, or misunderstanding of what the camp offered. We also hosted two diagnostic camps with the help of a local orthopedic surgeon and an anesthesiologist who determined patients' fitness for surgery. These diagnostic camps demonstrated one of the major challenges of hosting surgical camps: meeting the needs of both the community and the surgeons donating their time and skills. The diagnostic camps required that community members travel to CRHPs campus for evaluation, yet could not guarantee that they would or would not be accepted for surgery, as they would need to be later cleared by the surgeons themselves. However, not pre-screening patients would mean that the surgeons would have to spend more time in clinic and less time doing surgeries.

This challenge pervaded through the rest of the preparation and during the camp. In the fall, we completed a surgical equipment inventory and ordered new supplies. The challenge was trying to balance the surgeons' expectations and needs with our budgetary limitations. Working with Ravi and the other fellows, I learned so much about not just tools and equipment used in surgeries, but also about hospital management and policies. I saw the importance of flexibility in a rural area, as most of the surgeons' preferred tools, drugs, and suture styles were not readily available.

During the camp itself, we continued to try to balance the expectations of surgeons and patients as we coordinated the surgery schedule and helped the nursing staff with surgical prep. Amidst communication gaps and last minute changes, the work was still very rewarding, as you could immediately see the dramatic differences that these surgeons made in the lives of their patients. We continued to see the dramatic impact of these surgeries as we helped the hospital staff with follow-up scheduling and appointments. At the end of the camp, surgeons completed one set of follow-up rounds where they detailed all of the post-surgical requirements. Our role was then to make the follow-up schedule and contact the surgeons about any concerns and questions. Seeing the post-operative care for many different surgeries taught me so much about the concerns after surgery, especially in a low-resource setting. Coming into the fellowship, I had no idea that we would be involved with an endeavor this large. I am really thankful for the diverse learning opportunities that I experienced and the dramatic impact that it had on individuals in the community.

Stroke Rehabilitation

Another project that emerged during our time at Jamkhed was coordinating and overseeing the rehabilitation for a man who had a stroke. His stroke occurred in October and left him hemiplegic, with his right arm and leg paralyzed. Physiotherapists were expensive and far away and therefore not feasibly accessible for this patient and his family. The other fellows and I communicated with physical therapists that we knew back home and collaborated with hospital

staff to devise a plan for his therapy. We researched stretches and exercises that would improve his range of motion, reduce pain, decrease the risk of developing contractures and promote movement in his arm and leg. We initially met with him three times each day to complete this exercises. Eventually he developed movement in his toes and feet and then his legs and we were able to work with him to build his leg strength and help him to stand and eventually walk. When he was able to walk on his own, we worked with his family to teach them his exercises, allowing him to go home. We still saw him once each day to continue working on his strength and balance. As visitors came, we were able to learn from them and their advice in order to build on his therapy. One physical therapist from a visiting Australian public health course helped us develop exercises to improve the strength of his back, which could lead to him having more controlled movement in his arm. The ergo-therapist from our surgical camp showed us exercises that he could do to build muscular endurance and how to make a sling that he could use to stabilize his shoulder.

Working with this man helped me see how I value working with patients consistently for a long-term period. Being able to comprehensively understand the circumstances of a person's life allows you to be able to address problems using strategies that are best for them. However, it also taught me the importance of being able to communicate effectively with those who you work with. This man did not speak any English and my Marathi was limited at best. We worked to be able to say some things that helped with the therapy, such as asking whether or not he had walked that day or communicating therapy times, but we weren't able to fully understand concerns that he and his family may have had. We also had trouble communicating some of the complexities and challenges of the process: that even though the therapy would help him regain movement and strength, he may not completely regain movement in his right arm. We worked with other hospital staff who would translate, but sometimes the message or the intended emotional support was lost in the translation. It also taught me more about the challenges of working in low-resource areas. As non-professionals we constantly worried about whether we were providing this man with the best care. Yet this family did not have many other options and did not have access to the professionals that we would at home. That is why the VHW model is so innovative, as it brings professional quality care to communities who have a lack of access to health services. I look forward to being part of more creative solutions to increase access to professional quality care all over the world.

Clinical Exposure

In addition to our work on developing a physical therapy program, I had many hands on clinical experiences in Jamkhed that taught me a lot about the medical field. Each day, we started our morning with Dr. Prashant, the inpatient physician at the hospital. He led us on rounds to go over the cases of the current inpatients. Though these patients were sometimes few and far between due to a general decrease in patient population, we were able to observe many aspects of impatient care: from pre and post-surgical protocols to heart-attack management and treatment of severe burns. These rounds taught us what kinds of illnesses and emergencies are common in the area and the common course of treatment. We were able to clearly observe how the region is caught in the balance between infectious and lifestyle diseases as we saw tuberculosis and

diarrheal disease but also heart attacks, high blood pressure, and hyperglycemia. We were able to delve even further into the strategies for treating these conditions as we worked with Dr. Prashant to develop hospital protocols for common emergencies such as snake bites and heart attacks as well as pre and post-op procedures. Though we hoped that we would be able to implement these protocols to improve the standard of care and make staff transitions easier, we were unable to get these published before my fellowship ended. However, developing them taught me a lot about not just the clinical protocols, but the process and challenges associated with promoting a certain standard of care in different parts of the world.

In addition to rounds, much of our clinical exposure came from our work with Samir, who is in charge of dressings, among many other responsibilities. We had the opportunity to help with dressing changes for patients with injuries from motor accidents and burns or wounds from leprosy. We also learned from Samir, Dr. Prashant, and the visiting surgeons while observing post-operative dressing changes and follow-up visits. The patients who had surgery during the camp had various complicated procedures performed, including skin grafts, Kirschner wire fixation, and cast immobilization. All of these also had complex follow-up procedures, with concerns about infection or contracture. I was able to learn about the strategies for dealing with these concerns, which typically involved more creativity than it would in a typical medical center at home. For instance, many of our patients with foot correction surgery were required to wear an AFO brace after removing their plaster cast. As this brace is not accessible in our area, we instead explained the design to the staff at the artificial limbs workshop who were able to build them. I also learned about the complexities of communication and collaboration with visiting surgeons as we balanced their recommendations with the realities of working in a remote area.

The last, and perhaps most impactful, major clinical experience that I had at CRHP was the opportunity to assist with deliveries. With the new free-delivery program at the hospital, deliveries were much more frequent than they were the last few years. This gave Sandhi and I the chance to learn a lot about the delivery process and best practices for assisting. Initially, Dr. Shobha would come with us to deliveries and would explain how to properly provide support to avoid perennial tears and how to properly deliver the head, shoulders, body, and placenta. We were also taught how to properly tie and cut the cord and how to check to make sure the baby was healthy. This instruction allowed us to assist the nurses on deliveries for the remainder of the ten months. This experience taught me about some of the major differences between medical practices in different areas. As I discussed the strategies and practices with visitors from Australia, the UK, and the US I saw how different “best practices” could be in each area. These best practices often varied as the patient population was so different. For instance, doctors in western countries have to be more concerned about tearing as babies are significantly larger in those areas. Differences also occurred due to the lack of certain medications or equipment. I also learned about the challenges of promoting international recommendations for deliveries, as many of the recommendations that I came across from my research were not feasible in areas like Jamkhed and may not have a significant benefit. This experience, combined with my work on the maternal health survey, also taught me how interested I am in maternal and child health. I hope to explore this passion more as I enter medical school in the fall.

Reflection

This fellowship taught me more than I could ever have imagined, not only about the challenges of improving the health of communities in rural areas and how to surmount them, but also about myself and how I want to be a part of this field in the future. I learned just as much from the successful projects and productive work as I did from the challenges and the times when things did not work. One of the things that I learned about working in the nonprofit sectors is the importance of consistent funding. While there were plenty of areas that I hoped to work in and plenty of needs to be met within the organization, the lack of current funding makes those goals difficult to accomplish. While I came into the fellowship hoping to learn about developing and evaluating programs like the Adolescent Girls Program or curriculum development for VHW trainings, this often wasn't possible. Due to a dip in funding, VHW trainings were less frequent, meaning that the planning for the new Adolescent Girls Program cycle took longer than it usually does. Though the last cycle had graduated in August, the new cycle had not started before I left. Other projects that we were interested in also had to be backed from outside funding.

I learned that funding from grants provides difficult restraints on an organization. While the funding source often wants to make sure that certain standards are met and that their money is going to the "best" place, this often results in expectations and requirements that do not make sense in the context of the organization. The large international organizations do not necessarily understand the realities of a small nonprofit working in rural India. These granters also don't want to fund the less glamorous but equally important parts of the organizational structure, such as administration costs, hospital supplies, salaries, and medications. While individual donations can be used to fill in the gaps, it might not be enough to meet the needs of the organization. As I am involved in international health in the future, I am interested to see how the funding of aid organizations changes. I hope to be a part of a field that starts to focus on making funding more community based, with expectations and requirements matching the needs and realities of the area and not the agendas of the international bodies.

Another major challenge that I experienced at CRHP was the struggles in communication. These challenges are not just rooted in language barriers, but are more due to a lack of defined roles within the organization. The communication issues that pervade the organization are particularly noticeable in times of high traffic or stress, such as in preparation for the camp or when many international groups are visiting. There have been times when I was not given information that I needed and individuals with that information were difficult to reach. This has really taught me the importance of delegation within an organization. Having a structure that allows for the dissemination of pertinent information is incredibly important for the functioning of an organization. It also taught me the importance of open communication within an organization. Having the community aware of not just what is happening that day, but of the current challenges and future plans allows people to not just be better prepared to accomplish these goals, but also to be more invested in the organization and where it is going. In my last couple of months, I had the opportunity to work with a practicum student as she worked with

Ravi to develop a strategic plan. I am hoping that this plan will improve communication within the organization in the future and help CRHP move into what is next.

Though I learned a lot in this experience about the larger challenges of the international health field, I also learned a lot about what I want my role in this field to be. I found through working with mothers to complete my survey and through assisting with deliveries that I love the field of maternal and child health. I had previously thought I wanted to work in internal medicine, specializing in gastroenterology or endocrinology, but both of those fields felt like there was something missing. I found that this area was a strong role in the field of global and public health. While I have plenty of time to select my specialty, this experience taught me that having opportunities for partnerships in global health and opportunities to work with remote and low income areas is an important aspect that I want out of my career. It also taught me that in the field of global health, I want to work in long term partnerships with communities. While emergency aid organizations like Doctors Without Borders do fantastic work, I found that my ideal role in the global health sphere would be more focused on developing partnerships over a longer period of time. I learned that some of the most sustainable work that is done internationally focuses on supporting and learning from communities who know their area best. Though I don't know exactly what this will look like in my future career, I am excited to take advantage of future opportunities in this field.

I would really like to take this opportunity to thank all of the people who made this experience possible for me and who supported me during my time at CRHP. I am very thankful to David, who was a great resource and taught me so much about international health field through the work that he does. I would like to thank the other interns and fellows, who were not only fun to work with but also incredibly inspiring. I was so thankful to be able to work with people with such diverse backgrounds and future plans. I am grateful for the mentorship of both Dr. Shobha and Ravi who taught me about not only medicine and health, but also about nonprofit management and international development. Lastly, I am so grateful to have had a chance to work with the staff at CRHP. Each person on CRHP's campus made me feel like a part of their family and showed me endless kindness and support. Their stories and their commitment to improving the health of the communities was inspiring, and I will continue to draw on my experiences with them to inspire the work that I do in the future.