

As a global health student, taking part in the Free-Range program was a rewarding experience. Touring Umea University's Global Health and Epidemiology Unit and attending the rural health conference at the Centre for Rural Medicine aligned with my interest in the field of global health research. During my trip to Sweden, I learned about different perspectives in rural health research to improve healthcare delivery in remote communities.

On the first day, I got a tour of Vasterbotten Museum in Umea. The tour guide discussed the history of Sami people and the reserves they built around the area. It was my first-time hearing about the story of indigenous people in Sweden. I learned that some of the approaches Sami people in Sweden use to address health issues in their communities are similar to the ones used by indigenous people in Canada. A Sami researcher presenting during the rural health conference at the GMC mentioned the use of storytelling in groups as a therapy tool. The importance of storytelling to build harmony in communities is a well-known tradition among indigenous communities living in Canada. This taught me that the holistic view of health shared by indigenous Canadians is also shared by indigenous populations in other countries. Therefore, findings from health research integrating an indigenous world view would be useful for indigenous communities on an international scale.

The next day we toured Umea University's Global Health and Epidemiology Unit. We met two researchers working in the unit, Anna-Karin Hurtig and Miguel San Sebastian, who gave us a presentation about their unit. Dr. Sebastian delved into the topic of social epidemiology in relation to major differences in life expectancy between different municipalities in Sweden. His job as an epidemiologist is to find out that these trends exist. Some of the findings were illustrated using a gap minder tool (ie. showing obesity count in Sweden over 10 years). Dr. Sebastian talked about how there are gaps in addressing why there are differences in life

expectancy between towns in England and Sweden. Dr. Hurtig discussed the MPH and PhD program in Public Health at Umea University. She gave us a presentation about the research conducted by PhD students from countries like Colombia, Nigeria, Rwanda and India, who are conducting research to improve health systems in their country. It was interesting to learn about the unit's emphasis on international collaboration to improve healthcare systems globally.

The presentation about social epidemiology gave me insight into what kind of research epidemiologists conduct, and their role in terms of informing policy decision making. As a student interested in health policy, I asked a few questions about how epidemiological research is translated into policy in Sweden, specifically Vasterbotten county. I learned that knowledge translation was also an issue in Sweden when it comes to translating research into policy. The complexity of reasoning out why differences in life expectancy exist between local communities makes it difficult to come up with policy ideas to address health inequalities. Another social epidemiological research project addressed the increase in obesity across Sweden over the past decade. He mentioned the gap minder tool as an effective way to translate social epidemiological research findings about the prevalence of chronic disease. From a health policy perspective, the use of a gap minder tool for knowledge translation is an effective way to show trends in health outcomes across a country, county or municipality as the tool highlights areas that are rapidly experiencing high rates of obesity relative to other areas around it. This can be useful when investigating community factors contributing to chronic disease development relative to surrounding communities by comparison. This can be informative for policymakers, as it would help them prioritize what health concerns are important for different communities.

Afterwards, we travelled to Storuman to attend the rural health conference at the GMC. Before the conference, we worked with Sam and Laleah to transcribe interviews for their

research projects. I transcribed Sam's interview with Dr. Barrygram about his take on eHealth adoption in Storuman. He proposed that as a rural physician, he would be more willing to adopt an eHealth product that has a single interface, is easy to use, and can help with comorbidities because most of his patients have more than one chronic disease when they visit him. He also discussed knowledge translation related issues that make it hard to plan out eHealth initiatives for the long run.

The topic of eHealth was also explored during the rural health conference at the GMC in Storuman, Sweden. The potential of eHealth technology to change how health care is delivered in rural areas seems like a transformative approach to the healthcare system. There have been many advances in medical and public health research to provide quality healthcare for citizens in countries like Canada, Sweden and Australia. However, the benefits of such advances are limited to urban areas with plenty of resources.

Rural areas often lack the infrastructure to provide health services relative to hospitals in urban cities. This was evident when touring the virtual health room in a town called Slussfors with a small population of 70. The room was integrated in an elementary school in the town. There were medical devices to measure blood pressure, insulin levels, cardiac ultrasound, and a bluetooth notification system connected to the devices to inform the nearest hospital about an emergency medical situation. There were limited resources to expand infrastructure in the town and build a virtual health room, so an existing facility was used to accommodate patients who required access to the room. This initiative was discussed as a sustainable way to build community trust and increase the cost-effectiveness of virtual health rooms in small, rural communities like Slussfors.

The discussion about eHealth as a new avenue of health care delivery is relevant to mitigate the health inequalities arising from spatial geography. Andreas Koch from the Universitat of Salzburg presented about a simulation model perspective and spatial analysis. He mentioned that in between strong and weak ties from a simulation model perspective, there's a good mix of agents with high betweenness and/or closeness centralities. Betweenness centrality is seen as an important actor in a network for disseminating information as mediators. Closeness centrality referred to the proximity of the actor to others in a network. The purpose of the model is to maximize on social capital in a relational way. From the research he conducted, he found that a cooperative team leader with betweenness and closeness centrality had the highest value of social influence. When I relate Dr. Koch's presentation to Dr. Barrygram's comments about organizational issues preventing eHealth from scaling up in Storuman, I see the potential for people with expertise in knowledge translation, eHealth technology and the healthcare system to act as cooperative team leaders when scaling up eHealth projects in various rural communities.

During the final day of the conference, medical students from Umea University presented their research in GMC. A presentation about patients' and followers' attitudes towards the concept of virtual health rooms was relevant to my area of interest. The presentation started off with the World Health Organization's statement that telemedicine has the potential to reduce costs and increase quality of healthcare. The presenter also mentioned that it can help reduce demographic challenges of retaining health workers in the long run. According to the interviews conducted by the medical student, patients in health centers (ie. Norsjo, Wilhelmina and Stenbergaska) had a positive attitude towards the adoption of telemedicine. A list of the expectations was that there would be decreased travel time, increased sense of security for rural areas, faster contact with healthcare and trust that virtual health room designers will know what's

suitable. Some of the fears shared by patients were that there would be lower quality healthcare, concerns about the elderly accepting the concept and decreased funds to regular healthcare. A few of the patients made a request to have personnel and technical support for the elderly who may need help using the devices in virtual health rooms. Furthermore, the medical student stated that 8 more virtual health rooms would be built near remote communities in Sweden. Hearing about the experiences of patients using a virtual health room in a remote town in Sweden was useful when it came time to narrow down my topic for research.

From what I've gathered, scaling up virtual health rooms should involve the input of community members, physicians and eHealth developers to maximize its cost-effectiveness. The room helps patients monitor their blood glucose and pulse, thereby avoiding travelling long distances to visit a physician. However, most patients require assistance when using them. Leaving out key players during eHealth implementation would limit the scaling up of virtual health rooms in slightly larger, remote communities.

In a small town like Slussfors, there are two nurses with varying shifts, and patients come in when they are present. In a slightly more populated town without a hospital nearby, like Storuman, the sustainability of virtual health rooms as it would be based on the retention of enough health workers. If eHealth is meant to compensate for the lack of health workers in rural areas, it would be key to address this gap when scaling up eHealth initiatives. Virtual health rooms are a limited, centralized approach to eHealth initiatives which would be easily adopted by very small communities with no alternatives. As a physician in Storuman, Dr. Barrygram stated that he requires evidence that the initiative can be used by all his patients to monitor and/or manage their comorbidities. Future collaboration can potentially be a platform to scale up eHealth technologies that consider the perspectives of various stakeholders.

Overall, my learning experiences from Sweden have shaped my interest in the field of rural health and eHealth. Not only did I gain valuable knowledge that will help guide my research, I also learned what it's like to collaborate and learn from others in a completely new environment, a skill that would be useful for me to engage in the field of public health. Everything that I learned from Free Range leaders, fellow students and community members contributed to my knowledge regarding gaps and advances in rural health research. I also experienced what it's like to be fully immersed in a foreign culture/environment and discuss a diverse range of topics with like-minded individuals. In conclusion, the Free-Range program allowed me to learn about rural and remote health from the ground-up, truly making my time in Sweden a one of a kind experience.