

Clinical Rotations

#1) The clinical rotations position within the Rockswold Health Scholars Program provides a unique insight into the everyday lives of a multitude of health professionals from medical students to staff physicians to occupational therapists and speech pathologists. During the ten weeks, I spent 1-2 weeks shadowing in different departments, including pediatrics, traumatic brain injury clinic, psychiatry, emergency medicine, cardiology, general surgery, and orthopedics. In addition to following these health care teams as they provided patient care, I also had the opportunity to attend conferences, meetings, and grand rounds with them. Apart from these clinical experiences, I also volunteered with the literacy program and food shelf at the hospital and even worked with a resident doctor who was researching the effectiveness of the patient hand-offs at HCMC. The broad range of experiences that this program offers is extremely rare and I was told many times by residents and medical students that they wish they had a program like this during their undergraduate studies.

#2) The Clinical Rotations program is a unique opportunity to have an inside look at healthcare inside of HCMC, a level one trauma center located in downtown Minneapolis. During this rotation, the intern will spend 10 weeks shadowing different health professionals in the Traumatic Brain Injury Clinic, Pediatrics, Surgery, Orthopaedics, Psychiatry, Cardiology, and the Emergency Department. This program allows not only early exposure to medical procedures and conferences, but also conversations with the residents, medical students, and staff of HCMC that open the mind to the variety of ways that one can serve in health care. Each student develops a research project about a case or topic that they would like to delve deeper into throughout the summer. Because of HCMC's position as a safety-net hospital, this program also allows a unique chance to explore social determinants of health care as they relate to each of the departments as well as a chance to volunteer at organizations like Reach out and Read and the Food Shelf.

Cardiac Biomarkers

With the guidance of Dr. Apple I began investigating the issues with diagnostic coding for myocardial infarctions. I first identified significant differences between ICD-9 and ICD-10 coding for MI. Next, I wrote a paragraph on the need to include a T2MI code in ICD-10 that was included in a paper that in Clinical Chemistry (July 2016) titled Discordance Between International Classification of Diseases (ICD) Coded Myocardial Infarction. I then worked with the UTROPIA dataset to identify cases where ICD coding varied between editions from a real patient cohort. I compiled this information into my final poster for this program. This study helped give me a greater understanding of the complex way research, clinical care, public health, and health care policy all interact in the storage and analysis of information and how flaws can be propagated in these areas.

Public Health

The public health internship is very unique in that I had experiences at HCMC as well as in the community. I worked closely with my Public Health mentor on the Community Health Needs

Assessment two days a week. This entailed going on interviews within the community, conducting literature research and data collection and drafting a description of the process to be included in the hospital's report. I was also able to shadow health care providers at HCMC two days a week including: MDs, PAs, MPHs, nurse practitioners, pharmacists, social workers, community health workers, psychologists, etc. One day a week I shadowed at the Hennepin County Adult Detention Center and various homeless shelters which exposed me to a different portion of the community and a different side of medicine. I volunteered at the HCMC food shelf, the Reach Out and Read program and served dinner at People Serving People. In addition, I did St. Stephen's Street Outreach and A Day in the Life program to get an idea of what it is like to be homeless and the needs within the community.

Infectious Disease Research Lab – New for Summer 2019

This research lab at HCMC focuses primarily on infectious disease testing. During the summer rotation, the student will be exposed to new research testing for infectious disease. In some instances, the student may have the opportunities to actively participate in ongoing FDA trials for infectious disease testing, such as infectious diarrhea, clostridioides difficile infection. We also actively participate in ongoing investigation of antibiotic resistance patterns among bacterial recovered from patients at HCMC. The bulk of rotation will be working in our infectious disease research lab but the student will also be given an opportunity to participate in clinical microbiology laboratory rounds with the inpatient infectious disease group at HCMC.

CDRG

My position was with the Chronic Disease Research Group at HCMC. Unlike the other positions in the Rockswold Scholars program, CDRG is primarily data-driven and requires only an interest in the field of health, not a plan to attend medical school. My internship relied heavily on my knowledge of R and allowed me to build on my knowledge of statistical models to create an interactive tool for physicians related to kidney transplant outcomes. It is incredibly valuable to see something that you made have potentially life-changing effects for patients. In addition to my statistical work, I was able to shadow in several different departments and get a feel for how doctors use and have a need for the kind of data analysis that I worked on.

Drug Addictions

Dr. Pravetoni and his team are working to develop a novel vaccine treatment for opioid abuse disorders. The vaccine consists of a modified drug molecule that stimulates the subject's immune system to produce anti-drug antibodies, which bind to the drug and prevent it from passing over the blood brain barrier, reducing the drugs psychoactive and reinforcing effects. The research is currently working with mice subjects so there is animal handling and work involved. On a day to day basis, I helped out with the bench work involved with vaccine development and trials. It is a mixture of animal work (vaccination, blood serum collection, etc), different assays, data processing and reading research. In this lab, a group of people work closely together in a team setting, making projects very collaborative. There were three other scientists that I frequently worked with or closely to which made it always a fun environment as well. There were plenty of learning opportunities and everyone I interacted with was incredibly

patient and kind. There is plenty of time to get out of the lab into other areas of the hospital. I usually spend one to two days out of the week shadowing. Half day shadowing worked really well in my schedule because then I could still get work done in the lab. Overall, this research is incredibly relevant, interesting and fun. I would recommend it to anyone who likes working on a team, hands on work, and wants to get an idea of what research in a hospital setting looks like.