

Daniel Currie

Graduation Year: Junior

College: Science

Major(s): Physics

Minors(s): Philosophy

Scholar Group Membership: No

Did you received other funding for this project?: No

Could you have completed this project without CUSE funding? No

More details on CUSE funding assistance?

Project Title: National Low Dose CT Scan Early Detection Lung Cancer Screening Program

Project Location: Northwestern Memorial Hospital, Chicago, Illinois, United State

ND Faculty Mentor: I worked with Dr. Hart, but he is not affiliated with Notre Dame

Project Type: Grogan Fellowship

Why did you undertake this project/experience? Deepen your knowledge of a topic or issue, Prepare for professional school (MD, MBA, JD)

Did your funded experience help you:

[Deepen your understanding of your coursework or field of study]: Very Much

[Discern your interests and post-bac goals]: Yes

[Become confident in your ability to set and achieve your goals]: Yes

[Gain a more nuanced view of local, national, or global communities]: A Little

[Improve your written and verbal communications skills]:A Little

Tell us about your experience.

This summer I worked as a Diagnostic Radiology Intern with Dr. Hart at Northwestern Memorial. In his academic time, Dr. Hart has been looking at the prevalence of asbestos-related disease in a cohort of Local 17 Heat and Frost Insulators. Over the summer I organized and analyzed the screening data from workers and their spouses. Although the screening program was for lung cancer, Dr. Hart was interested in the incidental asbestos related findings. Norbert and I sought to quantify the prevalence of asbestos related pleural disease in workers after the implementation of OSHA regulations.

Despite OSHA workplace safety regulations in the 1970s, we found that workers with an initial workplace exposure in the 1980s manifested markers of asbestos exposure on Low Dose Computed Tomography. These included pleural plaques, mesothelioma, asbestosis, and diffuse pleural thickening. This suggests continued low level asbestos exposure. As a next step, we drafted a few abstracts. They pertained to the prevalence findings in our screening sample as well as an ROC curve analysis of pleural disease diagnosis. Using a Receiver Operating Characteristic, we sought to identify the accuracy of a single radiologist's clinical diagnosis compared to a panel of radiologists.

Describe the impact this project had, both on you as a student-scholar and on the people you worked with.

This project taught me a tremendous amount about the nature of clinical research, asbestos related disease, and radiology as a specialty. This was my first experience as a clinical researcher, and it proved significantly different from hard science research. It tested my ability to think outside the box and look at a preexisting data sample from a different angle. Further, the pathology of asbestos related disease is complex. Trying to learn as much as I could in only several weeks was intimidating but also fascinating. Developing a firm understanding of the range of diseases was essential to asking the right research questions. Lastly, this experience developed my understanding of the radiology specialty. Shadowing Dr. Hart in the reading room and observing several musculoskeletal procedures gave me a deeper appreciation of the intricacy of disease diagnosis and treatment.

Norbert and I moved this project along considerably. Due to the nature of his schedule, Dr. Hart did not have time to organize and analyze the data himself. Hopefully, our results will be published to illuminate this significant threat to worker health and encourage more adequate workplace safety regulations.

Describe how this experience is connected to your plans as a student or future professional.

Exposure to this specialty in the medical profession was a great experience. I plan to attend medical school, but I do not have a clear idea of which specialty I would choose. I am thankful that I had this early exposure to radiology to educate any of my future discernments within medicine.

More immediately, Norbert and I will be presenting our work at the International Symposium on Malignant Mesothelioma this fall. I look forward to the chance to bring our findings to light as well as the opportunity to learn about other recent discoveries regarding the pathology, diagnosis and treatment of this tragic disease.

What advice would you give other students who are planning to pursue similar projects?

Be curious. Do not be afraid to ask questions, even if they seem embarrassingly simple. From my experience, Dr. Hart was more than happy to answer any questions I had about asbestos-related pleural disease or the next step for our project. Blindly guessing one's way through a problem will only create more problems later on. Plus, asking questions sometimes led to key insights about our project.

Also, allow yourself to enjoy what you are doing. Towards the beginning of the internship I was a little uptight and anxious about not making mistakes. Perhaps I was a little impatient with myself as well. It was important to remind myself that I was only an undergraduate. Once I did this, I was able to enjoy my work a lot more. As a specific example, I was supposed to draft abstracts giving an overview of our study. At first, I was very perfectionistic and tried to nail every word so that it could compare to the detail found in a medical journal. Eventually I realized

that I just needed to do what I could and not be so hard on myself. Overall, this attitude allowed me to be more productive and also enjoy my summer significantly more than before!