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When you think of a research job as an undergraduate, what comes to mind? Probably some type of work in a lab right? When I think of a research job, I see a student working in a lab performing gel electrophoresis, running PCRs, working with mice, growing bacteria, treating cells with genes, preparing solutions, washing test tubes, or looking into microscopes. For some reason, I just couldn't see myself doing any of those things. So, this past summer I was determined to find a research job that did not involve work in a lab. I was determined to do something different.

Since I want to be a doctor, I found a job working for a doctor. I wanted a chance to be around doctors and hospitals and learn more about the field I hope to enter into one day. Normally, undergraduate students *shadow* doctors to learn more about what they do and what a typical day in their job is like. I wanted to find a way to *work* with a doctor and not just shadow. So I found a job with a pediatric general surgeon at Children's Hospital as a research assistant for the papers he writes.

I did spend the first few weeks shadowing in the operating room. But then I began working in earnest as a research assistant, reviewing medical records and operative notes, obtaining information, and then entering data into a database for analysis. I learned a lot about various surgical procedures and have become much more aware of conditions and diseases prevalent among children.

The job also gives me a chance to familiarize myself with medical terminology and paper development. The surgeons and the nurses write papers on the effectiveness of procedures, the longevity of implantable devices they surgically place in the patients, and these papers are presented at conferences or are published in journals for other surgeons and doctors to disseminate their knowledge and experience to colleagues.

Shalini Vaid (front) working with her mentor

A major challenge working in healthcare is accomodating privacy laws. The U.S. Department of Health and Human Services issued the Privacy Rule to implement the requirement of the Health Insurance Portability and Accountability Act of 1996 (HIPAA). The Privacy Rule discusses the use and disclosure of a person's health information. It also addresses the individual's right to privacy and controls how health information can be used. The Privacy Rule aims to protect information but still allow health information to be accessed when needed in order to promote better health care and protect the health of the general public.

For example, if using the medical information of certain patients in a study can benefit what is understood about medicine and could benefit other patients, then this information is allowed to be used. Before I began my job as a research assistant for the Division of Pediatric Surgery, I had to complete an IRB training program. The IRB is the Institutional Review Board which is an ethics

committee that has been designated to approve and monitor biomedical and behavioral research involving humans. The goal of the IRB is to protect the rights and welfare of the subjects. If the IRB deems a study unethical, it will not get approval, and thus the study cannot be conducted.

The IRB training took several hours over several sessions, followed by an evaluation. The IRB training is good for one year and then must be renewed. In order to look at medical records of patients, I had to be IRB trained and approved.

Before entering any operating room, I had to sign several forms and acquire the signatures of the head surgeon and several other department heads. Ultimately, privacy and ethics laws are important and essential for the proper functioning of a hospital, although sometimes time consuming. Based on my preferences and experiences, I would highly recommend a research position in a hospital instead of a lab.

Another research job I held that didn't involve labs was working for Dr. Greg Pence, professor of medical ethics at UAB and UASOM. Several undergraduate students and I helped him edit a new edition of his book over the summer. The job involved doing research on various topics online and in journals and books. It also involved editing and proofreading. Through this research position, I learned about various ethical dilemmas in medicine. While proofreading chapters of Dr. Pence's book, I learned about the history of ethics in the United States and around the world, and read about important events and cases that defined our current views and policies.

This type of research blends science with literature and philosophy, and taught me to appreciate the importance of history, politics, and the different opinions often represented on different sides of an issue.

I have also worked for a company called Atherotech. Atherotech is a lab; however it is not the typical lab doing research and publishing papers. Instead, blood samples from doctor's offices around the country are sent to this lab. The blood samples are analyzed for HDL (High Density Lipoprotein) and LDL (Low Density Lipoprotein) cholesterol levels. They use the VAP (Vertical Auto Profile) testing technique, which was developed by some of the head scientists working there. The researchers investigate more efficient and accurate techniques to measure cholesterol levels in blood samples. I did a wide variety of tasks in this job, ranging from testing the pipets to labeling the blood samples to learning how to operate the VAP machine. This job taught me about the commercial aspect of lab work and the benefits of these tests to doctors and patients.

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In summary I have performed research and worked "scientific jobs" without stepping a foot into a typical lab. Lab jobs are often highly sought after, but are not everyone's cup of tea. If it's not your "cup of tea" there are plenty of opportunities at UAB in non-lab research environments for undergraduates.

You can work in a hospital, work for a professor writing a book, work in a commercial lab, or any number of things. The key is to find a job that you love and enjoy and that is directed toward your ultimate career goal.