Background: Since 1993, ELEMENT (Early Life Exposure in Mexico to Environmental Toxicants), a birth cohort study based in Mexico City, has explored the developmental effects of chemical exposures like lead and BPA over the life course. The environmental health scientists who direct the study at the University of Michigan are exploring the potential links between chemical exposure and bodily states like diabetes, obesity, ADHD and premature sexual maturation. In 2014/15, Professor Elizabeth Roberts, (Department of Anthropology), has conducted ethnographic observation with six ELEMENT participant families in Mexico City in order to understand more about their daily lives and what it’s like to be part of a birth cohort study. Additionally, she has observed the daily functioning of the ELEMENT process itself to understand how knowledge is produced about environmental chemical exposures. Mexican Exposures involves a bioethnographic collaboration between ELEMENT scientists and Dr. Roberts where they seek to combine two different kinds of data; biological samples and ethnographic observation to see if they can ask and answer questions about environmental health and bodily states which could not be answered using only one kind of data alone.

Abstract: Meagann Ibarra and Josue Toledo are assisting both Dr. Roberts in the Department of Anthropology and researchers in the School of Public Health, who study how chemical exposures effect health among families in Mexico City. For Dr. Roberts we are working with a team to develop codes for the ethnographic field notes Dr. Roberts took about the lives of six ELEMENT participant families, paying special attention to issues of health, family and neighborhood dynamics. We are also coding photos, documents and transcripts from the observations. For our work with ELEMENT scientists we are helping to reorganize the biological samples they have collected in Mexico City over the last two decades. The lab samples, ranging from frozen blood and plasma to hair and nail clippings, are being sorted and mapped in the program Freezer Pro in order to have them more readily accessible for data analysis. Part of our responsibility is to write field notes about the process of sample reorganization for Dr. Roberts. These field notes will also be coded for data analysis about how the ELEMENT study is organized.

Results/Conclusions: Although this project is still in its early stages we have learned a lot about both anthropological and biological approaches to health.

In the ELEMENT laboratory, we have regularly assisted with Freezer Map checks, a process that double checks the data we have cataloged into our online inventory. We have also participated in shipment receiving. The complete organization and inventorying of mother and child urine for one visit has also been accomplished, including data entry into the online catalog. Currently in the lab we are in the process of organizing the currently gathered blood samples. The headway made during our time in the lab has also led to the beginning of a barcode system that is expected to be implemented on the ELEMENT samples that are currently organized and stored. Another component of the project is the Anthropological aspect. Since this is Dr. Robert’s attempt at creating a new bio-ethnographic approach, we are still in the process of finding the best way to both code and combine the information from the ELEMENT team and Dr. Robert’s field notes. We are expecting to find a way to code key words of a project, such as “people’s attitudes towards animals” and be able to bring up a list of codes with context for each individual code. We have also managed to start coding photographs that were taken during Dr. Robert’s time in Mexico, allowing us to gain insight on the environment and people, as well as what they were exposed to. We have also typed up field notes of our experiences in the ELEMENT lab which will then be analyzed as field notes by other project members. The approach to our project is constantly changing and adapting as we figure out what programs work best for coding and analyzing data. It is unknown what the ELEMENT bioethnographer collaboration will hold in the next phase of the project but the goal is to shed more light on the everyday health of the subject families than either biological or environmental health methods would on their own.

Methods: In 2014/2015, Professor Elizabeth Roberts conducted ethnographic observations about the household and neighborhood environment of six ELEMENT participant families living in Mexico City. These observations were recorded in field notes, photos, audio recordings, and transcripts and then later uploaded into a computer program used for qualitative research analysis known as Atlas.ti. In 2015/16 - UROP students Josue Toledo and Meagann Ibarra, graduate student, Magdalena Zegarra, and Post Doc, Camilo Sanz , have been coding these observations. During the year we meet once a week to discuss our coding experience, sharing any difficulties, or surprises we had while coding. The purpose of this coding is to explain how daily life has an impact on the health of the participants Dr. Roberts has been following.

Meagann Ibarra and Josue Toledo have also participated in organizing biological samples gathered by the ELEMENT team from participant families in Mexico. We work alongside Rebecca Tutino, faculty at the School of Public Health, doing various tasks such as taking inventory, organizing, entering data into Freezer Pro and mapping out the samples present in the lab. We also write up our own field notes about our experiences in the lab, which will ultimately be coded as well as part of the Mexican Exposures project. Being able to work with both kinds of data gives us a unique perspective as we explore both the anthropological and biological aspects of this bio ethnographic approach.

Hypotheses: We as UROP students have had the rare opportunity to work with both anthropological and biological data, allowing us to gain a unique insight on the project as a whole.

Meagann’s Hypothesis: “As I work in the lab I find it so interesting to look at all the different urine samples and colors and it makes me wonder if all the soda the participants drink due to the lack of clean water in Mexico is affecting their urine or perhaps their overall health.

Josue’s Hypothesis: “I am intrigued by social cohesion demonstrated by the people of the neighborhood and if it is a manner of dealing with higher stress levels due to a variety of external factors including extortion, corruption, and poverty.

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