

Student investigates risks of asbestos exposure in former factory town

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(Medical Xpress)—Understanding the full consequences of environmental exposure to asbestos has proved a demanding venture, and for the past two summers University of Pennsylvania senior Shabnam Elahi has worked on just that: Mapping this risk in Ambler, Pa.

The next few months will be no exception. Elahi's research will continue as she digs into decades-old records and interviews residents in order to better understand the [health hazards](#) in this small town about 40 minutes northeast of Philadelphia. A Penn Undergraduate Climate Action Grant is funding her project this summer.

Elahi is a student in the School of Arts and Sciences majoring in biology.

"The bio major is very broad, so you can explore a lot of interests," she explains. "It's exciting to see how things work, things you take for granted."

She explains that Ambler has a long history of [asbestos](#) production. This silicate material was popular in construction due to its resistance to fire and electrical damage.

Elahi began the Ambler project when she was accepted to the Penn Undergraduate Environmental Health Scholars Program. Through the project, she started working with Frances K. Barg, associate professor of [family medicine](#) and community health in Penn's Perelman School of Medicine and associate professor in the anthropology department.

Both cite Edward Emmett's work in Ambler as the starting point for the project. Emmett is professor and director of academic programs in occupational and environmental medicine at Penn Med. He became interested in the town's asbestos issues around 2007 but says his research didn't take off until a few years later.

The exposure to asbestos began in 1881 when a company made Ambler a factory town, specializing in asbestos and other related products.

But after the [health risks](#) of asbestos were discovered and federal regulations were enacted in the 1970s, the factories in Ambler were shut down. The waste from the production remained.

Elahi remembers seeing a photo in which white piles of asbestos sit in front of swing sets: "The children slid down them because they thought it was snow," she says. "There was a lot of miscommunication and lack of education in terms of exposure."

Since the demise of the industry, the Environmental Protection Agency has come to the Ambler dumpsites to investigate. The grounds have been labeled "Superfund" sites, a designation that puts the government in charge of renovating the toxic areas.

Residents have only recently begun to understand and experience the effects of asbestos exposure, found primarily in the form of mesothelioma, a rare form of cancer.

"Mesothelioma has a long latency period," Elahi says. "People could have been exposed [to asbestos] 30 years ago, but they are just now getting sick."

Barg says that because exposure symptoms don't appear immediately, "it's hard for people to feel that risk is real."

This is where Elahi's research comes into play.

She is organizing an in-depth analysis of two specific neighborhoods: West and South Ambler, closest to the locations of the old factory and the dumpsites. Elahi will look at each individual who has lived in the two areas since 1940, using census data and statistics from the Pennsylvania Cancer Registry. She will then explore the health outcomes of each person, focusing specifically on the pattern of mesothelioma cases.

"Ultimately, I want to map out the mesothelioma rates," she says, "which areas of the neighborhoods have higher concentrations of cancer, the ones closer to the factory or the ones closer to the sites? Were factory workers the most sick because they were constantly exposed? Or was it the wives or the children?"

The overall theme, she notes, is determining which factors lead to the highest risk of exposure and consequential health issues. However, the project is two-pronged: Elahi will also concentrate on the individual — and communal — perceptions of exposure.

"What did the population [of Ambler] think about risk? Did they know asbestos was not a good thing? Was there enough education [about risk]?" Elahi plans to ask.

She says this latter component is more difficult to measure due to the number of residents who moved from Ambler upon hearing of exposure dangers. But she still intends to reach out to them, so that her data can be as complete as possible.

The main goal of her research is to help the community, Elahi says.

"The community's voice hasn't really been heard in the process."

Barg says the stability of the town is a top priority as well: "We were first interested in the effects of asbestos on health. We've now realized that people are worried not only about their own health but also about the community itself."

Emmett explains that his team will continue working with the Ambler community as the EPA gathers data and eventually discloses proposed remedies.

"We want the community to be able to have an intelligent discussion with the EPA. People [in Ambler] are thinking more and more about what they would want done," he says.

The team is part of a larger project called REACH Ambler, or Resources for Education and Action for Community Health in Ambler, which received pilot funding from Penn's Center for Excellence in Environmental Toxicology and is currently supported by a Science Education Partnership Award from the National Institutes of Health.

Elahi contributes to the epidemiology side of the research, but she explains that there are other Penn groups in REACH focusing on the effects of asbestos on the lungs as well as the movement of the material through soil.

The REACH Ambler team is also organizing a museum exhibit in collaboration with the Chemical Heritage Foundation.

Outside of the classroom, Elahi helps to run Penn's chapter of MedLife, a national service organization that looks to provide access to medical care in low-income communities in Latin America.

During the upcoming academic year, Elahi hopes to expand MedLife's membership at Penn and increase the opportunities available for

undergraduates to volunteer at mobile clinics.

Elahi is leaning towards medical school after next year's graduation. Her hometown is North Haven, Conn., where she has volunteered and continues to volunteer at Project Access, a non-profit that provides free medical care to uninsured and low-income individuals.

"I did a lot of follow-ups," Elahi says. "It was great to talk to patients. But it also shows how the health-care system isn't always fair."

And Elahi hopes to change that, to make sure treatment is made available to those who need it.

Provided by University of Pennsylvania

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