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Northeastern awarded \$9.9 million NIH grant



Northeastern engineering professor is leading the four-year research project. Photo by Getty Images.

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Northeastern University has received a \$9.9 million grant from the National Institutes of Health (NIH) to lead a study on the impact of exposure to environmental contamination on preterm birth rates and to develop sustainable solutions.

Led by **Akram Alshawabkeh**, professor of civil and environmental engineering at Northeastern, and Jose F. Cordero at the University of Puerto Rico, the team will explore whether exposure to commonly found environmental contaminants and chemicals, such as phthalates and trichloroethylene, contribute to the high incidence of preterm births in Puerto Rico. They will pursue new sustainable technologies to identify and remove harmful chemicals from contaminated groundwater. Researchers from Northeastern's College of Engineering and the Bouvé College of Health Sciences will collaborate with the University of Puerto Rico – Medical

Campus, University of Puerto Rico Mayaguez and University of Michigan on this interdisciplinary research project.

"This grant from the NIH is a tribute to Professor Alshawabkeh and his first-rate team, and recognizes Northeastern's considerable expertise and commitment to research that has an immediate impact on pressing societal issues," said **Provost Stephen W. Director**.

The preterm birth rate in Puerto Rico — now approaching 20 percent of live births — far exceeds the average rate in the United States, a discrepancy that is not explained by other socio-cultural factors. Puerto Rico has a large number of "Superfund" sites — locations identified as high-risk for the public by the Environmental Protection Agency — in addition to more than 150 potential hazardous waste sites throughout the island.

"The potential for exposure to the chemicals from these sites and its effects on public health are not well understood," said Alshawabkeh, the principal investigator. "The multifaceted approach of this research will allow us to validate our hypothesis that exposure to chemicals and environmental contaminants contributes to the high number of preterm births in Puerto Rico."

As part of an epidemiological study of pregnant women in Puerto Rico, the researchers will follow a group through pregnancy, collect data on their everyday activities, measure their potential exposure to chemicals and identify correlations between exposure and subsequent risk for preterm birth.

Based on the data, the team will develop environmentally sustainable ways to mitigate the effects of toxic contaminants that exist in groundwater. One method that they will investigate uses solar energy to turn harmful chemicals into non-harmful byproducts.

While this research is being conducted in Puerto Rico, the findings will be applicable to other populations throughout the globe, said Alshawabkeh.

David Luzzi, dean of the **College of Engineering**, noted that the college "is rapidly growing, with an increase in the size of the faculty by 20 percent in two years, and (increasing) investments in the four strategic areas of human health, a sustainable environment, energy and security.

"We are proud to be in the very small elite group of engineering colleges that lead an NIH Program Project Center, one that addresses challenges at the intersection of two of our research priorities. I congratulate Professor Alshawabkeh and his multi-university team."

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The research included in the so-called Puerto Rico Testsite for Exploring Contamination Threats (PROTECT) project is funded by the NIH's National Institute of Environmental Health Sciences' Superfund Research Program.

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