Protecting the Health of Mothers and Babies in Puerto Rico

Fundamental Questions | **Application and Synthesis** | **Implementation and Adjustment** | **Policy and Practice** | **Impact**

2006
March of Dimes Prematurity Report Card indicated Puerto Rico had the highest preterm birth rate in the U.S. (19.9%) and among the highest in world.*

2010
NIEHS Superfund Research Program funds the PROTECT SRP Center.

2011
PROTECT detected the presence of the volatile organic compound trichloroethylene (TCE), polycyclic aromatic hydrocarbons, pesticides, herbicides, arsenic, and mercury in drinking water in the target region of northern Puerto Rico.[16]

2010-Present
PROTECT confirms that, out of the contaminants they were testing, phthalates are the most prevalent chemicals in women's bodies, drinking water, and home environments.[23]

2012
Traced TCE pathway to limestone karst geology of northern Puerto Rico, which does not filter contaminants out before the water enters drinking water aquifers.[8]

2012
Identified methods of using electricity to break down TCE in contaminated water into nontoxic forms.[25]

2012-Present
Developed a new method to remove TCE from water in the laboratory with electrical currents, in conditions mimicking karst aquifers.[6,12]

2012
Added report-back component to the project at the request of community partners, in collaboration with the Silent Spring Institute.

2015
Expanded environmental health sciences work with addition of the Children's Environmental Health Center (CRECE) and, later, the NIH Environmental influences on Child Health Outcomes (ECHO) program.[11]

2013-Present
Started distributing materials to educate communities about strategies to reduce exposure and attempt to change individual behaviors.

2014-Present
Established partnerships with health practitioners around Puerto Rico to share findings so they can educate patients and encourage behavior change.

2016
Expanded public health activities during Zika outbreak to include infection prevention.[10]

2017
Expanded research and outreach activities after hurricanes Irma and Maria to include disaster response.[10, 22]

2018
Improved environmental health literacy among staff at participating clinics and study participants, who self-report behavior changes such as purchasing and using products without target chemicals.

2018
Helped collaborating community organizations expand their impact beyond PROTECT participants, through training more than 40 health professionals how to effectively share information about environmental and chemical exposures with all patients.

2019-Present
Developed a new, sustainable membrane technology to clean up organic contaminants in water.[15]

2019
Researchers observe that phthalates, as well as chemicals created to replace them, can mimic or interfere with hormones in the bodies of pregnant women.[3]

2020
Expanded investigations to include other contaminants, such as metals, glyphosate from agricultural activities, BPA from plastics, and more.

2020
Designed a platform that boosts removal of multiple organic chemicals from water at high flow rates.[9,4]

2021
Adapted outreach during COVID-19 pandemic, creating videos for Facebook and Instagram to educate pregnant women about environmental contaminants and health impacts, despite lockdowns.

*Non-NIEHS funding

NIH National Institute of Environmental Health Sciences

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