**CRECE Integrated Knowledge**

**Data Analysis**

**Health Assessments**

**Air Pollution and Development**

**Multiple Chemical Mechanistic Screening**

**Lab Analysis**

**Biomarkers**

**Community and Translation Core**

**CREC and Development**

**Human Subjects Core**

**CREC Data and Samples:**
- Air Pollution
- Biomarker
- Questionnaires
- N=162

**PROJECT 1:**
- Reducing the Development
- Physical Growth

**PROJECT 2:**
- Multiple Chemical Mechanistic Screening

**PROJECT 3:**
- Biomarker

**PROJECT 4:**
- N=162

**Results:**

**Comparison of exposure biomarker concentrations to NHANES**

**Product use in relation to exposure biomarker concentrations**

**Challenge:** Hurricane Maria

Hurricane Maria left a devastating path of destruction throughout the island that continues to be an extremely serious humanitarian and public health crisis. Lack of electricity and access to clean water and other resources remains a huge concern. CRECE researchers and staff in Puerto Rico have been on the front lines of these recovery efforts.

**Headline:**

Exposure to Triclosan in Pregnancy is Associated with Increased Inflammation

**Methods:**

As part of the PROTECT cohort study, pregnant women were recruited early in pregnancy (>20 weeks gestation) between 2003 and 2012 in 7 prenatal clinics and hospitals in Northern Puerto Rico. At the initial study visit (Visit 1; 16-20 weeks gestation) women provided urine and blood samples and filled out detailed questionnaires. At Visit 2 (20-24 weeks) a second urine sample was collected, and at Visit 3 (24-28 weeks) both urine and blood samples were collected again. Women were followed until delivery and birth outcome data was recorded.

All urine samples were analyzed via LC-MS/MS at the National Center for Environmental Health of the CDC for five phenols: bisphenol A (BPA), triclosan (TCS), benzophenone-3 (BP-3), 2,4-dichlorophenol (2,4-DCP), and 2,5-dichlorophenol (2,5-DCP), and three parabens (butyl paraben (BP), methyl paraben (MPB), propyl paraben (PPB)). Specific gravity was also measured in each sample to account for urinary dilution.

For 120 subjects, plasma samples (N=215 total samples) from visits 1 (N=119) and 3 (N=96) were available for measurement of C-reactive protein (CRP) as well as 4 cytokines (IL-1β, IL-6, IL-10, and TNF-α). For 58 subjects, urine samples (N=162 total) from visits 1 (N=58), 2 (N=54), and 3 (N=50) were analyzed for 8 hydroxydeoxyguanosine (8-OHdG) and 8-isoprostane as indicators of oxidative stress. Linear mixed models were used to estimate associations between exposure and inflammation markers, adjusting for visit number, maternal pre-pregnancy BMI, education, and specific gravity.