The Issue

- PFAs (also called PFCs) have been released into the environment contaminating water supplies across US
- PFAs degrade slowly so contamination lasts for years
- PFAs have long biological half-lives, so remain in the body for years
- Drinking water in Gloucester County, NJ, was contaminated with perfluoro-n-nonanoic acid (PFNA) (>100ng/L) and perfluorooctanoic acid (PFOA) (>25ng/L)
- Residential water is now filtered through activated charcoal

Methodology

- A convenience sample of 120 adult (20-74 years) residents in the area have been recruited
- A questionnaire administered asking about previous and current water use, demographics, sources of food, and occupation
- Serum, household tap water, and household dust were collected, serum samples will be collected twice more
- Twelve PFAs were measured using LC/MS using an optimized CDC methodology (Yu et al. J Chromatogr A 2017, 1480: 1-10)
- Detection Limits between 0.02 and 0.9 ng/mL (serum), 5ng/L (water), and 10 ng/g (dust)
- Reports were provided to participant comparing the levels in their serum with nationwide levels reported within CDC NHANES

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Initial Findings

- Three years after the intervention mean serum levels of PFNA in the community exceeded the 95th percentile of those reported in NHANES
- Cohort will be followed to assess the effectiveness of the water intervention to reduce community blood levels
- A preliminary exposure/PBPK model evaluation shows reasonable agreement suggesting it can be used to assess the variability across the population and support interpretation of measurements