

# BIPHASIC DECLINE OF SERUM PERFLUOROOCCTANOIC ACID (PFOA) CONCENTRATIONS AMONG MID-OHIO VALLEY RESIDENTS

**Scott Bartell**, *University of California Irvine, USA*

**Antonia Calafat**, *Centers for Disease Control and Prevention, USA*

**Christopher Lyu**, *Battelle, USA*

**Kyle Steenland**, *Emory University, USA*

**Barry Ryan**, *Emory University, USA*

**Background and Aims:** Two PFOA-contaminated water systems, Little Hocking Water Association and Lubeck Public Service District, have used granular activated carbon filtration since 2007 in order to remove the contaminant. The study aim is to characterize the subsequent rate of decline of serum PFOA concentrations among exposed residents.

**Methods:** Up to 7 blood samples were collected from each of 200 study participants from 2007 to 2009; serum samples were analyzed for PFOA content. Rates of decline and apparent half-lives are calculated separately in year 1 and year 2, with adjustment for a presumed background serum concentration of 4 ng/mL.

**Results:** The mean background-adjusted decline in serum PFOA concentrations was 27% during year 1 and 11% percent during year 2. Background-adjusted individual rates of decline differed significantly between year 1 and year 2 (paired t test;  $p < 0.001$ ). Corresponding half-life estimates are 2.1 years during year 1 and 5.0 years during year 2.

**Conclusions:** PFOA was eliminated from human serum more slowly during the second year after an exposure intervention than it was during the first year, suggesting complex pharmacokinetics and/or ongoing local exposures.