The New Hampshire Expanded Biomonitoring Program

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*biomonitoring*New Hampshire

- Targeted study in southern NH of residents reliant on private wells drinking water (total As, U, speciated As)
- Statewide surveillance
  - analytes of concern
  - nutritional biomarkers

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Potential for Arsenic and Uranium Exposure

- Forty-six percent of the state population is reliant on bedrock wells for drinking water
- Geologic formations, past land use practices provide opportunities for exposure
- NHPHL data (2005-2006) 31% of 121 samples collected in southern NH exceeded MCL
- Significant correlation between elevated drinking water arsenic and higher than average total urinary arsenic

Study Design

- Recruit from High Risk Areas
  - Age, race, gender, sensitive sub-populations
  - 500 participants
  - Control population – Nashua
- Questionnaire
  - Residential, occupational & recreational histories
  - Food diary and drinking water patterns
  - Demographic, educational, socioeconomic status
  - Behavioral risk factors
- Collect urine & drinking water
  - Incent participation

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Surveillance Biomonitoring Project

- Implementation 2017
- Baseline information, NH specific ranges
- Statewide recruitment
- Representative recruitment
  - BRFSS data
- Opportunistic recruitment
  - Blood donation centers
  - College campuses
  - State employee complex
  - Clinical collaborators
  - Academic partners

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Biomarker Selection Surveillance Program

- Metals
- Pesticide metabolites
  - Organophosphate
  - Pyrethroid
- Environmental tobacco smoke
  - Cotinine
- Industrial chemicals
  - PFCs
- Nutritional biomarkers
  - Iron
  - Folate

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Challenges
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- Administrative hurdles
  - Budget
  - Hiring
- Participant Recruitment
- Community Engagement

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