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Potential Collaborations

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Collaborating with Others

- Comparing methods
- Additional samples from the same homes
- Comparing measurement results
- Integrating model components

U.S. EPA

- Share experiences in non-targeted analysis, share libraries for non-targeted analysis, including break-down products
- Determine if any of the compounds on the "left side" of exposure/tox comparison are candidate compounds to be found in dust
  - Koa value allows partitioning between air/dust
  - Used in consumer products
- Utilize more categorized "Walmart" data to look for target compounds as source markers

Duke/Boston University

- Compare strategies/developments/challenges for non-targeted methods, share non-target libraries
- Exchange a limited number of dust samples for cross validation
- Include some common chemicals for targeted analysis
- Compare non-targeted levels in dust between east coast and west coast homes
- Compare compounds and levels in skin wipes with levels in skin

University of Michigan

- Deploy air sensor in some homes and compare with levels in dust
  - Depends on timing, ease of use

UC-San Francisco

- Compare strategies/developments/challenges for non-targeted methods, share non-target libraries
- Include a few common chemicals for targeted analysis
- How do compounds in blood compare to what compounds are in dust from California households
- Potentially obtain dust from some of their participants?
- We could provide blood samples for some of our participants?

Virginia Tech

- Compare source estimates from dust levels and indoor model to source estimates from models
- Coordinate some of our targeted compounds with compounds they are measuring
- Collect questionnaire data pertinent to models

Reality vs. Compounds Considered

- People are exposed to mixtures and transformation products
- Human systems are complex and the chemical may impact one system, which in turn impacts development
  - Chemical impacts on hormones
  - Chemical impact on microbiome
- Epidemiology often focuses on compounds we know how to measure and that we have established tox data
  - These exposures may also be correlated with other exposures
  - Lag between tox studies and epi studies

Challenges in Autism Studies

- Complex disease for which there are no cellular tests and no real animal models. Multiple biological systems involved (neurological, immune system, digestive issues)
- Latest estimates are 1 in 68 kids → Birth Cohort not cost effective
- No firm diagnosis until 2 years of age → Requires retrospective exposures
- High risk birth cohorts → Perhaps a greater fraction of kids with genetic causes