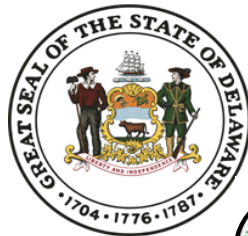


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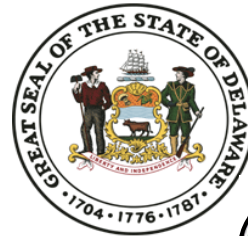


Design Study Presentation



RTI International is a trade name of Research Triangle Institute

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Some Definitions Before We Begin...

- ❖ **MULTI-MEDIA EXPOSURE STUDY** – a long-term study of the environmental levels of target contaminants in the air, water, food, and housedust that contribute to Delaware resident daily exposures, applying a random participant selection process that produces data allowing the strongest statistical inferences at the target level (state-wide, county-wide, CCD-wide, etc.)
- ❖ **STATISTICAL INFERENCE** – allows conclusions to be made about a given population extrapolated from results obtained through random sampling.
- ❖ **PILOT** – a scaled-down test program to determine factors for use in a larger-scale program.

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Overall Design Study Objectives

- ❖ Make direct measurements to characterize human exposures to contaminants from multimedia pathways to be representative of Delaware statewide.
 - ✓ The study employs a population-based, probability design to provide un-biased exposure estimates.
 - ✓ The study *would* identify contaminant classes and major sources of greatest importance.
 - ✓ Identify settings with greatest impact on exposure (e.g., personal, residence (indoor), outdoor, geographic location).
 - ✓ Include biological measures because contaminant absorption is a critical factor in future health outcomes and allows comparisons with NHANES.

Objectives (continued)

- ❖ Serve as a baseline for exposures occurring over the next decade and possibly beyond.
 - ✓ Are exposures changing?
 - ✓ Are environmental programs working?
- ❖ Validate models using actual Delaware data to more accurately predict statewide exposures.
- ❖ Utilize a phased approach to meet objectives (i.e. Design I & II).

Design I Pilot Study Goals

- ❖ A geographically diverse pilot effort with multiple objectives to complete the study design for the Multi-Media Exposure Study (MMES) and provide initial exposure data for targeted areas
- ❖ Plus, a more intensive exposure characterization study will be conducted in the Millsboro Census County Division (CCD) *to place the IRPP exposures in perspective with regional background, low, medium, and high exposure scenarios*

Design I Pilot Study Objectives

- #1 limited, range-finding study on high-priority contaminants to estimate the ranges for low, medium, and high exposure levels
- #2 methodology testing for all proposed activities of the next phase (Design II)
- #3 source impact study focusing on multi-media exposures in the Millsboro CCD.

Design I Plan

- ❖ Study Areas
- ❖ Study Population
- ❖ Recruitment / Retention Considerations
- ❖ Sampling Considerations

Design II MMES Objectives

- ❖ Define Exposure Occurrences & Distributions
- ❖ Define Sources and Causes of Exposures
- ❖ Define Exposure, Dose Status and Trends
- ❖ Develop Delaware-specific Exposure Models

Design II MMES Study Plan

- ❖ Study Area and Population
- ❖ Population Sampling Design
 - ✓ Cross-Sectional Population Sampling Considerations
 - ✓ Temporal Sampling Design Considerations
 - ✓ Longitudinal Sampling Considerations
- ❖ Sampling Size Considerations

Design II Statistical Considerations

- ❖ As a statewide study, (at least) 400 data collections at the personal, household, and ambient levels to provide exposure distribution data.
- ❖ For smaller population units, larger sampling quantities or rearrangement of sampling distributions might be necessary.
- ❖ Design II sample distribution considerations will be an important part of the Design I work process.

Questions & Answers



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