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NCEA/EPA
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Epidemiologic Evidence in NCEA's Tetrachloroethylene (Perchloroethylene) Health Assessment

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Tetrachloroethylene Health Assessment

- IRIS (Integrated Risk Information System) assessment
- Adopts new developments in risk assessment
 - EPA's 1999 Proposed Cancer Risk Assessment Guidelines
 - Harmonization of non-cancer and cancer
- Focus on chronic toxicity
- Currently in progress -- today's presentation focuses on supporting data, not conclusions

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Tetrachloroethylene Team

- Nancy Beck
- Karen Hogan
- Robert McGaughy*
(chemical manager)
- Jean Parker
- Deborah Rice
- Marc Rigas
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Epidemiologic Evidence

- Systemic toxicity (non-cancer)
 - Studies of several systems - - liver, kidney, nervous system including vision, immune, endocrine, and reproductive; and to the developing fetus
 - Mostly prevalence studies of occupational exposure; few studies of drinking water and ambient residential exposures

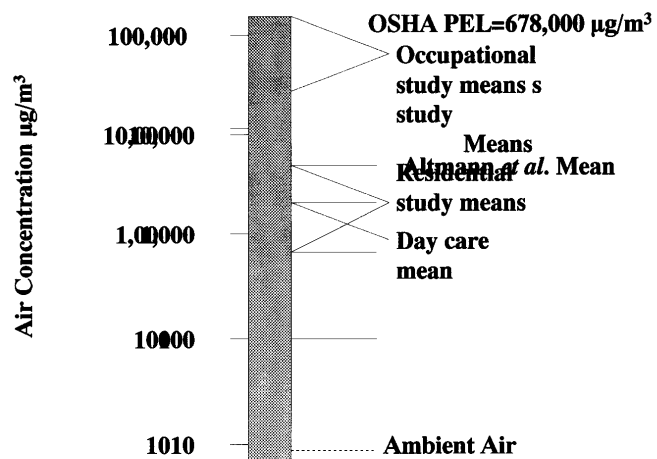
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Epidemiologic Evidence

- Systemic toxicity (non-cancer)
 - Clinical symptoms and serum enzyme concentration as indicators of toxicity; core battery of tests usually not available
 - Generally, small numbers of study subjects

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Lowest Observable Adverse Effect Levels - Neurotoxic Effects



Epidemiologic Evidence

- Cancer
 - dry-cleaners -- mortality
 - Blair cohort - 5,369 subjects
 - Ruder cohort - 1,708 subjects
 - degreasers (subcohorts) -- incidence and mortality
 - Anttila et al. (1995) - 849 subjects
 - Boice et al. (1999) - 2,631 subjects, routinely exposed
 - population incidence studies - Cohn et al. (1994)
 - case-control studies

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Epidemiologic Evidence

- Exposure assessment
 - job title as dry cleaner or laundry worker
 - use of biological monitoring data to identify cohort is rare (only one study)
 - many studies measure tetrachloroethylene concentration near time of health evaluation
 - several solvent exposures in drinking water studies

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Other Information Evaluated in an Assessment

- Hazard Identification
 - data on toxicokinetics and mutagenicity
 - toxicologic data as relevant to modes of action
 - potentially susceptible populations
 - characterization of database
- Dose-response
 - toxico-/pharmco-kinetic modeling

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Current Status and Next Steps

- 4th quarter, 2001
 - Internal review draft circulated to EPA offices for comment
- 2002
 - Currently addressing comments from internal review
 - External review draft for public comment and public meeting -- Federal Register notice will indicate availability of draft and details of peer review meeting

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