

Biographical Summary

Barbara D. Beck, Ph.D., DABT, Principal

Dr. Beck is an expert in toxicology and in health risk assessment for environmental chemicals, especially metals and air pollutants, and is the author of over 100 book chapters and journal articles on these topics. She has performed site-specific and chemical-specific risk assessments, developed exposure and risk assessment methodologies, and has presented the results to different audiences including regulatory agencies, the US Congress, and the public. Before joining Gradient, she was Chief of Air Toxics Staff for US EPA Region I. Prior to that she was a Fellow in the Interdisciplinary Programs in Health at the Harvard School of Public Health. She is at present a Visiting Scientist in the Molecular and Integrative Physiological Sciences Program in the Department of Environmental Health at the Harvard School of Public Health.

Representative Projects

Safety Assessment for Medical Implant: Performed toxicological evaluation of oil residuals on medical implants. Assessed potential for long-term effects.

Pesticide Spray Drift Evaluation: Developed sampling plan to assess air concentrations of pesticides, and performed risk assessment for spray drift exposure to pesticides.

Historic and Current Knowledge Regarding Toxicity of Chlorinated Solvents: Evaluated historical uses, and standards and criteria for trichloroethylene and perchloroethylene. Evaluated epidemiological and toxicological literature regarding carcinogenicity of trichloroethylene and perchloroethylene.

Evaluation of Lead Releases from Consumer Products: Developed and applied adult blood lead model to predict blood lead levels from discontinuous exposures to lead released from a consumer product.

Treated Wood Evaluation: Assessed risks of arsenic from use and disposal of CCA-treated wood. Developed protocols for studies to evaluate exposures to CCA-treated wood.

Toxicological and Risk Evaluation of Perchlorate: Conducted in-depth evaluation of animal toxicological studies in terms of human relevance. Coordinated human volunteer study involving low-level perchlorate exposure.

Testimony at Congressional Briefing on Lead Exposure from Recreational Vehicles: Presented analysis on Consumer Product Safety Improvement Act on exposures to and potential impacts of lead from valves on bicycles and motorcycles.



Practice Areas & Expertise

- Inhalation Toxicology
- Metals Toxicology
- Historical Understanding of Toxicology
- Regulatory Comment
- Risk Communication

Education

Ph.D., Molecular Biology & Microbiology,
Tufts University

A.B., Biology, Bryn Mawr College

Diplomate of the American Board of
Toxicology

Fellow of the Academy of Toxicological
Sciences

Registered Toxicologist with the European
Society of Toxicology

Selected Publications

Goodman, JE; Gaylor, D; Beyer, LA; Rhomberg, LR; Beck, BD. 2008. "Effects of MTBE on Leydig cell tumors in Sprague-Dawley rats: Range of possible Poly-3 results." *Regul. Toxicol. Pharmacol.* 50:273-284.

Bowers, TS; Beck, BD. 2006. "What is the meaning of non-linear dose-response relationships between blood lead concentrations and IQ?" *Neurotoxicol.* 27:520-524.

Lewandowski, TA; Seeley, MR; Beck, BD. 2004. "Interspecies differences in susceptibility to perturbation of thyroid homeostasis: A case study with perchlorate." *Reg. Toxicol. and Pharm.* 39(3):348-362.

Bailey, LA; Goodman, JE; Beck, BD. 2009. "Proposal for a revised Reference Concentration (RfC) for manganese based on recent epidemiological studies." *Reg. Toxicol. and Pharm.* 55:330-339.

Petito Boyce, C; Lewis, AS; Sax, SN; Eldan, M; Cohen, SM; Beck, BD. 2008. "Probabilistic analysis of human health risks associated with background concentrations of inorganic arsenic: Use of a margin of exposure approach." *Hum. and Ecol. Risk Assess.* 14(6):1159-1201.