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Areas of Expertise

- Inhalation Toxicology
- Exposure Modeling
- Airborne Pollutants & Particulates
- Electromagnetic Fields (EMF & RF)
- Radiation & Radionuclide Risk
- Risk Communication & Relative Risk
- Nanotechnology

Education

- Ph.D., Physics, Harvard University
- M.A., Physics, Harvard University
- M.S., Human Physiology and Inhalation Toxicology, Harvard School of Public Health
- B.A., Physics and Mathematics, Taylor University
- Fellow, Academy of Toxicological Sciences

Peter A. Valberg, Ph.D., ATS

Advising Principal

Dr. Valberg is an expert in human health risk assessment, inhalation toxicology, and modeling of human exposure to environmental chemicals. He has 30 years of experience on the faculty of the Harvard School of Public Health and at Gradient. Dr. Valberg has provided air quality expertise to the Department of Justice, US EPA, and the National Academy of Sciences. He is the author of more than 100 scientific articles on biological effects of environmental exposures on humans and animals. Dr. Valberg's risk assessment expertise covers air pollutants, chemical exposures, biologicals, radionuclides, and EMF (including power lines, radio waves, and cellular telephones). Recent projects have included evaluating health impacts of airborne particulate matter, diesel exhaust, metals, asbestos, sulfuric acid, and TCE. Dr. Valberg is frequently called upon to prepare and interpret health risk findings for a variety of audiences, and he helps apply research results to the regulatory and public policy arenas.

Selected Projects

Health Risk Evaluation for Air Emissions: Evaluated health risks based on stack emissions estimates, air dispersion modeling, comparative doses from different sources, and multiple-pathway health risk assessment.

Hexavalent Chromium: Prepared an in-depth analysis of a risk assessment prepared for exposure to Cr6+ in surface water and groundwater. Compared how different regulatory agencies approach Cr6+ risk assessment. Provided an integrative perspective on how risk is calculated for Cr6+ exposure compared to background, everyday risks.

Toxicity of Arsenic in Soils: Evaluated the scientific and epidemiological basis for arsenic toxicity and related toxicity to site-specific arsenic bioavailability. Recalculated how the cancer potency factor for arsenic is affected by water intake assumptions.

Environmental Electric and Magnetic Fields (EMFs): Reviewed and analyzed the various mechanisms by which biological systems may be affected by EMFs. Organized a workshop on EMF and leukemia, with subsequent publication in *Environmental Health Perspectives*.

Radioactive Risks: Used various US EPA and US DOE models to evaluate the implications of radioactive substance migration from a contaminated site and assessed the health impact of radioisotopes, including uptake of radioactivity into plants and, hence, into food.

Assessment of Carbon Black (CB): Evaluated the epidemiology of workers in the CB industry. Identified weight of evidence for CB toxicity for exposure *via* inhalation and ingestion. Reviewed data on the carcinogenicity of CB and evaluated likelihood of human carcinogenicity for CB.

Airborne Sulfur Dioxide and Sulfuric Acid: Evaluated health impacts from short-term, acute air releases of H₂SO₄ and SO₂, as well as health risks from long-term exposures to these compounds.

Selected Publications

Long, CM; Nascarella, MA; **Valberg, PA**. 2013. "Carbon black versus black carbon and other airborne materials containing elemental carbon: Physical and chemical distinctions." *Environ. Pollut.* 181:271-86.

Valberg, PA; Long, CM. 2012. "Do brain cancer rates correlate with ambient exposure levels of criteria air pollutants or hazardous air pollutants (HAPs)?" *Air Qual. Atmos. Health* 5:115-123.

Hesterberg, TW; Long, CM; Lapin, C; Hamade, A; **Valberg, PA**. 2010. "Diesel exhaust particulate and nanoparticle exposures: What do human clinical studies tell us about potential human health hazards of nanoparticles?" *Inhal. Toxicol.* 22:679-694.

Goodman, JE; Nascarella, MA; **Valberg, PA**. 2009. "Ionizing radiation: A risk factor for mesothelioma." *Cancer Causes & Control.* 20:1237-1254.

Valberg, PA; Van Deventer, TE; Repacholi, MH. 2007. "Base stations and wireless networks. Radiofrequency (RF) exposures and health consequences." *Environ. Health Perspect.* 115:416-424.