



Amy K. Madl, Ph.D., DABT

President, Senior Principal Health Scientist

Summary of Experience

Dr. Amy Madl is a toxicologist with 25 years of experience in the sampling and analysis, toxicology, exposure, and risk assessment of airborne chemicals. She earned a BS in Biochemistry and a MS and Ph.D. in Pharmacology/Toxicology. She is board-certified in toxicology and has focused her academic and consulting experience in the field of inhalation toxicology. Dr. Madl also specializes in occupational toxicology, air pollution, quantitative exposure reconstruction, and historical state-of-the-science assessment. She has expertise in quantitative exposure and risk assessment of airborne compounds in occupational and residential settings, as well as in safety evaluation of contaminants associated with medical devices and consumer products. Her experience includes investigating the health effects of exposure to a variety of compounds, including diesel exhaust, PM2.5, beryllium and other metals, benzene, oxidant gases, petroleum products, and asbestos, as well as irritants and sensitizers. Notable contributions that Dr. Madl has made to the field of occupational toxicology includes research on the exposure-response relationship between airborne beryllium and the prevalence of beryllium sensitization and chronic beryllium disease among manufacturing workers, characterization of historical exposures to airborne asbestos during gasket, packing, and brake repair activities, and investigation of consumer and industrial exposures to benzene from engine exhaust and solvent handling tasks. In addition, Dr. Madl has evaluated human health risk associated with chemical exposure of various medical and consumer products, including orthopaedic implants, drug delivery devices, electronic nicotine delivery systems and household and personal care products. Her research interests have focused on the toxicological effects of inhaled nanoparticles (i.e., carbon nanotubes), in which the patterns of regional and local cellular injury, particle fate and transport, and expression of markers of oxidative stress are evaluated in the lungs of animals exposed to inhaled engineered nanoparticles with different chemical and size compositions. More recently, her research has involved methods for characterization of electronic nicotine delivery systems, including aerosol chemistry and toxicology, consumer exposures, toxicology and pharmacokinetic studies, and human health risk assessments. Dr. Madl has published over 100 abstracts, book chapters, and peer-reviewed papers on various occupational and environmental exposure, toxicology, and risk-related topics.

Education

Bachelor of Sciences (B.S.), Biochemistry, 1993, University of California, Davis

Master of Science (M.S.), Pharmacology and Toxicology, 1997, University of California, Davis

Doctor of Philosophy (Ph.D.), Pharmacology and Toxicology, 2010, University of California, Davis

Project Experience

Quantitative Exposure Reconstruction

Managed and designed several exposure simulation studies to measure and characterize worker, bystander, and potential take-home exposures to airborne asbestos associated with the handling and/or replacement of asbestos-containing products, such as industrial gasket and packing materials, heavy equipment brakes, and vehicle brakes and clutches. These studies resulted in nine different peer-reviewed publications in scientific journals.

Conducted a quantitative exposure assessment of beryllium metal machining workers identified as being beryllium sensitized or diagnosed with chronic beryllium disease to understand the dose-response patterns associated with these health outcomes and the influence that different exposure metrics have in estimating upper bound exposures and identifying a threshold.

Managed an assessment of historical industrial hygiene data of background airborne asbestos concentrations onboard merchant vessels to better understand worker exposures to background asbestos when asbestos insulation installation or removal activities are not being performed.

Conducted a quantitative exposure analysis using Monte Carlo methods to estimate the range of exposures to benzene experienced by a worker, who was responsible for loading and unloading chemical cargo onboard chemical tankers, as well as preparing holding tanks for chemical product storage.

Managed and designed an industrial hygiene sampling study to understand benzene exposures to workers performing brush control activities with hand-held gasoline powered equipment.

Managed and designed an exposure simulation study to quantitate historical benzene exposures to railroad workers as a result of conducting repair activities in a roundhouse where diesel locomotive exhaust had accumulated.

Contributed to the design and implementation of a simulation study that evaluated airborne benzene exposures to workers using a degreasing agent, which historically contained varying concentrations of benzene.

Managed and designed an exposure simulation study evaluating the airborne concentrations associated with the use of mineral spirits to degrease locomotive engine components.

Occupational Health

Conducted a toxicological assessment to establish an occupational exposure limit for indium and indium compounds. Evaluation involved a critical assessment of human and animal studies and consideration of non-cancer and cancer health endpoints, as well as several risk assessment approaches (single point of departure and benchmark dose modeling) to identify an occupational exposure limit protective of human health.

Conducted an exposure assessment of beryllium manufacturing workers to understand the association between aspects of exposure, such as particle size and operation type, and the prevalence of beryllium sensitization and chronic beryllium disease.

Evaluated the scientific basis for the ACGIH Notice of Intended Change for the Threshold Limit Value for arsine. Evaluation involved a comprehensive review of the toxicological and epidemiological literature on arsine, as well as an evaluation of the studies upon which ACGIH relied for the historical and proposed TLV.

Developed 1-hour acute air action levels for chemical emissions associated with remedial activities at a petroleum industrial site. Developed methodology for estimating 1-hour air action levels intended to protect workers and other receptors against health effects associated with chemical air emissions from remediation activities.

Provided technical expert peer-review of a proposed control banding strategy being developed for an electronic manufacturing company. The control banding approach involves categorization of chemicals of concern according to similar physical and chemical characteristics, intended processes/handling, and anticipated exposure scenarios (i.e., quantity of chemical used, route of exposure). Based on these factors, appropriate control strategies or "control bands" are determined for each of the chemical groupings. The control banding strategy was determined to be a useful preliminary tool to identify chemical/physical exposure hazards in the workplace and provide a means to identify control measures before specific exposure data are acquired.

State-of-the-Science Analysis

Conducted a state-of-the-science assessment of the potential health effects of nickel nanomaterials. Evaluation involved a critical review of in vitro and in vivo mammalian toxicity studies with respect to: 1) physicochemistry, 2) routes of exposure and target organ effects, 3) biodistribution, retention, and clearance, 4) appropriateness of model system and translation to potential human effects, and 5) quality of nanomaterial characterization in the defined delivery media.

Conducted a state-of-the-art assessment of the knowledge and recognition over the last century of the health hazards of crystalline silica. Assessment involved a review of the literature on the toxicology and epidemiology of silica, as well as the recommendations for occupational exposure limits and appropriate measures for respiratory protective equipment for abrasive blasting operations with silica sand.

Managed a state-of-the-art evaluation on occupational exposures to crystalline silica in foundries. Evaluation included a review of the literature regarding foundry operations and work tasks associated with the use of silica, historical use of ventilation controls in foundries, and historical occupational exposures to silica in foundries.

Conducted a state-of-the-art analysis of occupational exposures to airborne asbestos during the removal and installation of asbestos-containing gaskets and packing materials using a variety of techniques and tools.

Contributed to a state-of-the-science evaluation regarding the epidemiology and toxicology of chrysotile from friction products, as well as other industrial materials. Project involved a comprehensive review of human and animal studies in the historical and current scientific literature, including evaluating issues such as dose-response, risk of lung cancer, biomarkers of disease, and prevalence of asbestosis among various occupational cohorts.

Managed a state-of-the-science analysis involving the hazards of beryllium and risk of chronic beryllium disease. Project involved a comprehensive review of the scientific literature on beryllium, as well as a review of the internal documents for the government and the beryllium manufacturer to understand the historical state-of-the-knowledge.

Provided support for a safety evaluation of a medical device, silicone breast implants, which involved a comprehensive review of the scientific literature related to the toxicology, pharmacokinetics, immunotoxicology, and medical applications of medical devices.

Medical Device and Consumer Product Safety

Led and contributed to multi-interdisciplinary research teams to evaluate electronic nicotine delivery systems (ENDS), including product/aerosol physicochemistry and toxicology, consumer exposures, toxicology and pharmacokinetic studies, and human health risk assessments, which have been subject to multiple premarket tobacco applications (PMTA) of open- and closed system devices, e-liquids, and oral nicotine products for the FDA Center of Tobacco Products. Led and contributed to research on how ENDS aerosol physicochemistry may be influenced by device operational parameters, e-liquid ingredient formulations, puff topography, and consumer behaviors. This research has been used to characterize the plausible range of consumer exposures to nicotine and harmful potentially harmful constituents (HPHCs) and assess the non-cancer and cancer health risks in comparison to combustible cigarettes and other ENDS products.

Managed an indoor air quality assessment of residential air filters. Designed a testing protocol to measure particles released from an air filter for varying consumer use conditions, used indoor air modelling to predict room and house concentrations for different ventilation conditions, and evaluated the potential for human health risk.

Conducted a state-of-the-science evaluation in regards to exposure and potential health effects associated with wear particles of metal-on-metal (MoM) hip implants. In a two part analysis, relevant physicochemical characteristics of wear particles was identified from cobalt-chromium alloy (CoCr) metal-on-metal hip implant patients and simulator systems and animal and in vitro toxicology studies of CoCr particles were evaluated with respect to their physicochemistry and dose relevance to MoM implant patients.

Conducted a critical state-of-the-science evaluation of e-cigarettes or electronic nicotine delivery systems (ENDS) with respect to chemical constituents in e-cigarette liquid and aerosol, topography parameters of e-cigarette users, and device parameters leading to variances in aerosol chemical constituents.

Conducted an evaluation of exposure to released chemical constituents during the use of powdered and sprayed cosmetics.

Managed human health risk assessment to quantify the theoretical human health risks associated with exposure to a sealant contained within non-flushing waterfree urinals. Evaluated potential sealant exposures to adults and children wading and/or swimming in the ocean and the Los Angeles River, in which wastewater effluent is discharged, and evaluated potential exposures to adults and children, users of the waterfree urinal, and to maintenance workers.

Managed a safety assessment project involving evaluation of the potential adverse health effects associated with inhalation or ingestion of palladium and nickel metal particles from use of a prototype drug delivery nebulizer.

Performed a feasibility study on the safety and benefit of using triclosan, an antimicrobial agent, in water dispensers. The study included a comprehensive review of the human and animal toxicological literature on triclosan and addressing the potential of producing resistant bacterial strains.

Performed a safety evaluation intended for consideration by FDA for approval of Phase III clinical trials for an injection free drug delivery device. Evaluated the potential risk of adverse health effects of aluminum, polycarbonate, and bisphenol A associated with the use of the device.

Managed evaluation of residential exposure to quaternary ammonium compounds following treatment of a home for sewage contamination. Conducted a review of the toxicological literature for quaternary ammonium and related compounds and a comparison of concentrations of these chemicals in consumer products.

Environmental Risk Assessment

Conducted community exposure and human health risk assessments of airborne chemical and particulate matter from a petroleum refinery fire. Exposure assessment involved combined evaluations of combustion emissions, air dispersion modeling, and time-in-motion analyses to derive receptor specific exposure estimates. Community member health risks were estimated for exposures to a variety of compounds, including volatile, non-volatile and persistent organic compounds, metals, particulate matter, and oxidants.

Conducted a human health and ecological risk assessment associated with halogenated and other chemical byproducts from the consumer use and disposal of liquid bleach in drains connected to wastewater treatment systems. A total of 23 halogenated organic and two inorganic (chlorate, perchlorate) compounds were considered, conservative models and input parameters were applied in the risk assessment.

Managed a study to evaluate diesel particulate emissions from two sand and gravel operations in Sonoma County using air dispersion modeling. The purpose of this study was to evaluate the potential human health impact associated with diesel particulate emissions from sand and gravel mining and processing operations under the context of the California Environmental Quality Act for a permit application.

Managed project related to potential pesticide contamination among residences surrounding a historical pesticide formulation and storage facility. Evaluated historical assessments associated with the site, including historical air dispersion modeling, risk assessments, community epidemiologic studies, and biological monitoring.

Provided support for project involving alleged acute and chronic health effects associated with an environmental release of sulfur-containing and volatile organic compounds. Evaluated the acute and chronic adverse health effects associated with a short-term exposure to airborne sulfides, thiophenes, mercaptans, and volatile organic compounds released from a nearby oil refinery. A literature review and environmental sampling and analysis of naturally occurring sulfur emissions were incorporated in the evaluation.

Epidemiology

To address concerns of a potential breast cancer cluster in a relatively large office building, historical building data collected as a part of a healthy buildings assessment were analyzed. In addition, an assessment of breast cancer incidence rates were conducted and compared to local rates of breast cancer accounting for age, race, sex, socioeconomic status, and other confounding factors associated with breast cancer.

Developed and prepared an experimental design of an epidemiologic study to evaluate the potential relationship between thyroid function indicators (neonatal hypothyroidism and levels of thyroid stimulating hormone) and exposure to perchlorate in drinking water. Research was the subject of a peer-reviewed publication Kelsh et al. 2003 J Occup Environ Med 45(10):1116-1127.

Proposition 65 Risk Assessments

Evaluated consumer exposures and potential health risk associated with wood dust contained within a pet product.

Conducted an exposure assessment of released chemical constituents during the use of powdered cosmetics.

Evaluated the need for warning under Proposition 65 requirements related to emissions from indoor floor cracks originating from groundwater contamination. Calculated estimated indoor air PCE and TCE concentrations from indoor floor crack flux measurements using indoor air modeling techniques.

Performed an evaluation of toxicity and medical data for a mixture of chemicals present in a hair care product that was the focus of Proposition 65 litigation. Evaluated the scientific literature and critiqued the toxicological basis and exposure potential of a certain ingredient in this product. The assessment involved collection of several representative products for chemical testing and experimental evaluation of bioavailability.

Regulatory Interaction

Conducted a critical toxicological assessment of the carcinogenic potential of biodiesel compared to diesel fuel based on a review of animal and in vitro toxicology studies involving exhaust or extract of particulate matter and/or condensate from exhaust of either biodiesel or diesel fuel exhaust.

Conducted a hazard assessment on behalf of Health Canada to identify key health effects (e.g., cardiovascular, pulmonary, hematopoietic, reproductive, etc.) associated with exposure to air pollutants from combustion and evaporative fuel emissions, as well as physiologic mechanisms relating to the development of each health effect. The intent of this assessment was also to identify biological assays to measure key health effects in a potential toxicity screening approach. The toxicity produced by fuels and fuel additive emissions was assessed for the following categories of air pollutants: total emissions, criteria pollutants (particulate matter (<PM10), carbon monoxide, nitrogen oxides (NOx), ozone, sulfur oxides (SOx), selected metals, and volatile organic compounds (VOCs). The VOCs considered in this assessment due to their relative concentrations in evaporative and combustion emissions as well as their relative toxicity included: formaldehyde, acetaldehyde, acrolein, benzene, 1,3-butadiene, PAHs/nPAHs (specifically including benzo(a)pyrene, phenanthrenes, and naphthalene), toluene, and xylenes. Based on the same criteria (relative content and toxicity) the following metals were considered in this assessment: barium, chromium, copper, iron, lead, and nickel.

Prepared technical comments on the draft document entitled Public Health Goal for Perchlorate In Drinking Water prepared by the Office of Environmental Health Hazard Assessment of the California Environmental Protection Agency. Addressed specifically the use of a 10-fold uncertainty factor to account for sensitive subpopulations, such as fetuses, infants, and pregnant women, to the effects of perchlorate. Evaluated several issues related to this topic: 1) iodide deficiency and dietary iodide intake in the U.S., 2) potential adverse health effects associated with iodide deficiency, 3) epidemiologic studies on thyroid function of infants or children exposed to perchlorate in drinking water, and 4) treatment of infants with congenital hypothyroidism or insufficient thyroid hormone levels.

Prepared comments on the EPA health risk reassessment of dioxin regarding the scientific basis for incorporating endodioxins in estimating total background dioxin toxic equivalence.

Evaluation included a comprehensive review and summary of the scientific literature and the toxicological significance of endodioxins as natural dioxin-like compounds.

Managed scientific evaluation of the California EPA draft documents The Determination of Chronic Reference Exposure Levels for Airborne Toxicants and The Determination of Acute Reference Exposure Levels for Airborne Toxicants as an independent evaluation for the petroleum industry. Reviewed the scientific methodology proposed for developing chronic reference exposure levels (RELs) intended to protect the community.

Other Research

Evaluated the toxicological, physiological, and pharmacokinetic basis for the 0.75 power of body weight scaling factor for interspecies extrapolation from animals to humans intended to support an agency criteria document. Conducted an extensive review of the scientific literature and agency documents to evaluate the empirical, allometric, and pharmacokinetic approaches used by different researchers to extrapolate dose between animals and humans.

Served as project leader for determining potential mechanisms of susceptibility to particle exposure in rats with monocrotaline-induced pulmonary hypertension. Coordinated efforts involving the Institute of Toxicology and Environmental Health, the California Primate Research Center, and the University of California Davis, School of Veterinary Medicine. Developed an aerosol nose-only exposure system for exposing animals to airborne particles with a staff aerosol engineer. Instituted the use of new inflammatory cell function and cytoskeletal assays at the laboratory.

Professional Experience

President, Senior Principal Health Scientist, Valeo Sciences LLC, June 2023 – present

Evaluate the toxicology, health and safety of chemical, physical, and biological hazards in a range of human exposure settings, including occupational, consumer, environmental, and medical. Serves as a Principal Investigator on several multi-disciplinary research teams involving chemistry, toxicology, exposure science, behavioral science, and risk assessment to address complex questions about human health and safety.

Senior Principal Health Scientist, Stantec (ChemRisk) (Formerly Cardno ChemRisk and ChemRisk), Sept 2003 – June 2023.

Specialize in areas of general toxicology, nanotoxicology, inhalation toxicology, quantitative exposure assessment, simulation exposure studies, human health risk assessments, state-of-the-art analyses involving occupational, residential and consumer product settings.

Research Associate, Center for Health and the Environment, University of California, Davis, Apr 2018-present.

Research the inhalation effects of electronic nicotine delivery systems by characterizing the particle and chemical composition of e-cigarette aerosol, as well as characterize the site-specific effects on the respiratory system.

Research Associate, Center for Health and the Environment, University of California, Davis, Jan 2011 – Apr 2018.

Research the effects of inhaled nanoparticles, such as carbon nanotubes, and the mechanisms by which nanomaterial physicochemistry influences regional and local cellular injury, particle fate and transport, and expression of markers of oxidative stress in the lungs and extrapulmonary organs.

Graduate Research Assistant, Pharmacology/Toxicology Graduate Group, University of California, Davis, Sept 2006 – Dec 2010.

Research the toxicological effects of inhaled nanoparticles, such as carbon nanotubes, and the mechanisms by which these particles cause cell injury in the respiratory tract. Characterize and compare patterns of regional and local cellular injury, particle fate and transport, and expression of markers of oxidative stress in the lungs of animals exposed to inhaled engineered nanoparticles with different chemical and size compositions.

Managing Health Scientist, Exponent, April 1999 – Sept 2003.

Provided consulting services specializing in occupational toxicology, air pollution, quantitative exposure reconstruction, and historical state-of-the-art assessment involving issues associated with the health effects of exposure to a variety of compounds, including diesel exhaust, PM2.5, beryllium and other metals, benzene, oxidant gases, petroleum products, and asbestos, as well as irritants and sensitizers.

Associate Health Scientist, McLaren Hart Engineering, ChemRisk Division, April 1998 – March 1999.

Provided consulting services involving human health risk assessment and toxicology issues associated with the safety and state-of-the-science of medical devices.

Graduate Research Assistant, Institute of Toxicology & Environmental Health, University of California, Davis, Oct 1994 – April 1998.

Conducted research to understand the potential mechanisms of susceptibility involved with particle exposure to cardiopulmonary-compromised animals. Contributed to the design of an aerosol delivery system and developed methods to understand particle deposition and clearance, as well as macrophage phagocytic and chemotactic capabilities in the lung.

Postgraduate Researcher, Institute of Toxicology & Environmental Health, University of California, Davis, June 1993 – Sept 1994.

Served as manager of a molecular biology laboratory, which focused on using molecular techniques to assess the effects of exposure to ambient air pollutants, including the oxidant gases ozone and nitrogen dioxide, on RNA expression levels for collagen proteins. Results from in situ hybridization studies were combined with immunohistochemistry, morphometry, and pathology investigations to understand the relation between exposure and disease.

Research Assistant III, Institute of Environmental Health Research, University of California, Davis, May 1991 – May 1993.

Contributed to morphometry studies to evaluate the effects of surfactant treatment on the pulmonary structure of pre-term lambs, which was used as basis to better understand the effects of surfactant treatment on premature human infants.

Certifications

- Diplomate of the American Board of Toxicology, 2007; recertified 2012-2017, 2018-2022, 2023-2027
- Asbestos Fiber Counting (NIOSH 582), 2011

Professional Membership and Service

- Society of Toxicology (SOT)
 - Member of Risk Assessment, Inhalation and Respiratory, and Nanotoxicology Specialty Sections
 - Elected Councilor of Inhalation and Respiratory Specialty Section, 2009 – 2011
 - Elected Secretary/Treasurer of the Nanoscience and Advanced Materials Specialty Section (2020-2021)
- American Conference of Governmental Industrial Hygienists (ACGIH)
- American Industrial Hygiene Association (AIHA)
 - Liaison for Nanotechnology Working Group, 2007 - present
 - Chair of Toxicology Committee, 2009
- International Society of Exposure Science (ISES)
- Society of Risk Analysis (SRA)

Peer-Reviewed Publications

- Madl, A.K., M.T. Donnell, and L.T. Covell. 2024. Synthetic vitreous fibers (SVFs): Adverse outcome pathways (AOPs) and considerations for next generation new approach methods (NAMs). *Crit Rev Toxicol* 1–51. <https://doi.org/10.1080/10408444.2024.2390020>.
- Tran, L.N., G. Rao, N.E. Robertson, H.C. Hunsaker, E.Y. Chiu, B.A. Poulin, A.K. Madl, K.E. Pinkerton, R.D. Britt, and T.B. Nguyen. 2024. Quantification of free radicals from vaping electronic cigarettes containing nicotine salt solutions with different organic acid types and concentrations. *Chem Res Toxicol* <https://doi.org/10.1021/acs.chemrestox.4c00065>.
- Madl, A.K. and K. Keeton. 2024. Slovakian glass fibre factory genotoxicity biomonitoring study - unsupported adverse outcome pathway (AOP) from the toxicology and human epidemiological experience of synthetic vitreous fibres (SVFs). *Mutat Res Genet Toxicol Environ Mutagen*. 896:503769.
- Tran, L.N., E.Y. Chiu, H.C. Hunsaker, K. Wu, B. Poulin, A.K. Madl, K.E. Pinkerton, and T.B. Nguyen. 2023. Carbonyls and aerosol mass generation from vaping nicotine salt solutions using fourth- and third-generation e-cigarette devices: Effects of coil resistance, coil age, and coil metal material. *Chem Res Toxicol* <https://doi.org/10.1021/acs.chemrestox.3c00172>.
- Madl, A.K. and H.C. O'Neill. 2023. Fiber biodurability and biopersistence: historical toxicological perspective of synthetic vitreous fibers (SVFs), the long fiber paradigm, and implications for advanced materials. *Crit Rev Toxicol* DOI: 10.1080/10408444.2022.2154636.
- Li, Y., A.E. Burns, L.N. Tran, K.A. Abellar, M. Poindexter, X. Li, A.K. Madl, K.E. Pinkerton, and T.B. Nguyen. 2021. Impact of e-liquid composition, coil temperature, and puff topography on the aerosol chemistry of electronic cigarettes. *Chem Research Toxicol* 34(6):1640-1654.
- More, S.L., M. Kovichich, T. Lyons-Darden, M. Taylor, A.M. Schulte, and A.K. Madl. 2021. Review and evaluation of the potential health effects of oxidic nickel nanoparticles. *Nanomat*. 11(3):642.
- Li Y., A.E. Burns, G.J.P. Burke, M.E. Poindexter, A.K. Madl, K.E. Pinkerton, and T.B. Nguyen. Application of high-resolution mass spectrometry and a theoretical model to the quantification of multifunctional carbonyls and organic acids in e-cigarette Aerosol. *Environ Sci Technol*. 2020 54(9):5640-5650.
- More, S.L., S.A. Thornton, J.R. Maskrey, A. Sharma, E. de Gandiaga, T.J. Cheng, E.S. Fung, A.J. Bernal, and A.K. Madl. 2020. PBPK modeling characterization of potential acute impairment effects from inhalation of ethanol during e-cigarette use. *Inhal Toxic*. 32(1):14-23.

- Mack, S.M., A.K. Madl, and K.E. Pinkerton. 2019. Respiratory health effects of exposure to ambient particulate matter and bioaerosols. *Comprehensive Physiology*. 10(1):1-20.
- Kovochich, M., C.D. Fung, R. Avansi, and A.K. Madl. 2018. Review of techniques and studies characterizing the release of carbon nanotubes from nanocomposites: Implications for exposure and human health risk assessment. *J Exp Sci Env Epidemiol*. 28(3):203-215.
- Chapman, A.M., K.Y. Sun, P. Ruestow, D.M. Cowan, and A.K. Madl. 2016. Lung cancer mutation profile of EGFR, ALK, KRAS: Meta-analysis and comparison of never and ever smokers. *Lung Cancer*. 102:122-134.
- Sahmel, J., C.A. Barlow, S. Gaffney, H.J. Avens, A.K. Madl, J. Henshaw, K. Unice, D. Galbraith, G. DeRose, R.J. Lee, D. Van Orden, M. Sanchez, M. Zock, and D.J. Paustenbach. 2016. Airborne asbestos take-home exposures during handling of chrysotile-contaminated clothing following simulated full shift workplace exposures. *J Exp Sci Environ Epidemiol* 26(1):48-62.
- Sahmel, J., H.J. Avens, P.K. Scott, K. Unice, A. Burns, C.A. Barlow, A.K. Madl, J. Henshaw, and D.J. Paustenbach. 2015. Measured removal rates of chrysotile asbestos fibers from air and comparison with theoretical estimates based on gravitational settling and dilution ventilation. *Inhal Tox* 27(14):787-801.
- Cowan, D.M., T.J. Cheng, M. Ground, J. Sahmel, A. Varughese, A.K. Madl. 2015. Analysis of workplace compliance measurements of asbestos by the U.S. Occupational Safety and Health Administration (1984-2011). *Reg Tox Pharmacol* 72(3):615-629.
- Madl, A.K., M. Liong, M. Kovochich, B.L. Finley, D.J. Paustenbach, and G. Oberdörster. 2015. Toxicology of wear particles of cobalt-chromium alloy metal-on-metal hip implants Part I: Physicochemical properties in patient studies and simulators. *Nanomedicine: Nanotechnology, Biology, and Medicine* 11(5):1201–1215.
- Madl, A.K., M. Liong, M. Kovochich, B.L. Finley, D.J. Paustenbach, and G. Oberdörster. 2015. Toxicology of wear particles of cobalt-chromium alloy metal-on-metal hip implants Part II: Importance of physicochemical properties and dose in animal and in vitro studies as a basis for risk assessment. *Nanomedicine: Nanotechnology, Biology, and Medicine* 11(5):1285–1298.
- Madl, A.K., K.D. Devlin, A.L. Perez, D.M. Hollins, D.M. Cowan, P.K. Scott, K. White, T.J. Cheng, and J.L. Henshaw. 2015. Airborne asbestos exposures associated with gasket and packing replacement: A simulation study of flange and valve repair work and an assessment of exposure variables. *Reg Tox Pharmacol* 71(1):35-51.
- Madl, A.K., D.M. Hollins, K.D. Devlin, E.P. Donovan, P.J. Dopart, P.K. Scott, and A.L. Perez. 2014. Airborne asbestos exposures associated with gasket and packing replacement: A simulation study and meta-analysis. *Reg Tox Pharmacol* 69(3):304-319.
- Sahmel, J., C.A. Barlow, B. Simmons, S.H. Gaffney, H.J. Avens, A.K. Madl, J. Henshaw, R.J. Lee, D. Van Orden, M. Sanchez, M. Zock, and D.J. Paustenbach. 2014. Evaluation of take-home exposure and risk associated with the handling of clothing contaminated with chrysotile asbestos. *Risk Anal* 34(8):1448-68.
- Madl, A.K., L.E. Plummer, C. Carosino, and K.E. Pinkerton. 2014. Nanoparticles, lung injury, and the role of oxidant stress. *Physiol Rev* 76:15.1–15.19.
- Cowan, D.M., T. Kingsbury, A. Perez, T.A. Woods, M. Kovochich, D. Hill, A.K. Madl, and D.J. Paustenbach. 2014. Evaluation of the California Safer Consumer Products Regulation and the impact on consumers and product manufacturers. *Reg Tox Pharm* 68:23-40.
- Shay, E., E. De Gandiaga, and A.K. Madl. 2013. Considerations for the development of health-based surface dust cleanup criteria for beryllium. *Crit Rev Toxicol* 43(3):220-243.

- Hollins, D.M., B.D. Kerger, K.M. Unice, J.S. Knutsen, A.K. Madl, J.E. Sahmel and D.J. Paustenbach. 2012. Airborne benzene exposures from cleaning metal surfaces with small volumes of petroleum solvents. *Intl J Hyg Environ Health* 216(3):324-332.
- Madl, A.K., S.V. Teague, Y. Qu, D. Masiel, J.E. Evans, T. Guo, and K.E. Pinkerton. 2011. Aerosolization system for experimental inhalation studies of carbon-based nanomaterials. *J Aerosol Sci Technol* 46(1):94-107.
- Paustenbach, D.J., J.S. Knutsen, D.M. Hollins, J.E. Sahmel, and A.K. Madl. 2010. Comparison of modeled and measured concentrations of airborne benzene from the use of petroleum-based solvents spiked with low levels of benzene. *Chemico-Biological Interactions* 184:296-298.
- Madl, A.K., S.H. Gaffney, J.L. Balzer, and D.J. Paustenbach. 2009. Airborne Asbestos concentrations associated with heavy equipment brake removal. *Annal Occup Hyg* 53(8):839-857.
- Madl, A.K. and K.E. Pinkerton. 2009. Health effects of inhaled engineered and incidental nanoparticles. *Crit Rev Tox* 39(8):639-658.
- Hollins, D.M., M.A. McKinley, C. Williams, A. Wiman, D. Fillos, P.S. Chapman, and A.K. Madl. 2009. Beryllium and lung cancer: A weight of evidence evaluation of the toxicological and epidemiological literature. *Crit Rev Tox* 39(S1):1-32.
- Madl, A.K., L.L. Scott, D.M. Murbach, K.A. Fehling, B.L. Finley, and D.J. Paustenbach. 2008. Exposure to chrysotile asbestos associated with unpacking and repacking boxes of automobile brake pads and shoes. *Annal Occup Hyg* 52(6):463-479.
- Murbach, D.M., A.K. Madl, K.M. Unice, J.S. Knutsen, P.S. Chapman, J.L. Brown, and D.J. Paustenbach. 2008. Airborne concentrations of asbestos onboard maritime shipping vessels (1978-1992). *Annal Occup Hyg* 52(4):267-79.
- Jiang, G.C.-T., A.K. Madl, K.J. Ingmundson, D.M. Murbach, K.A. Fehling, D.J. Paustenbach, and B.L. Finley. 2008. Exposure to chrysotile asbestos associated with handling, unpacking, and repacking boxes of automobile clutch discs. *Regul Toxicol Pharmacol* 51(1):87-97.
- Madl, A.K., E.P. Donovan, S.H. Gaffney, M.A. McKinley, E.C. Moody, J.L. Henshaw, and D.J. Paustenbach. 2008. Historical state-of-the-science review of the occupational health hazards of crystalline silica in abrasive blasting operations and related requirements for respiratory protection. *J Toxicol Environ Health, Part B Crit Rev* 11(7):548-608.
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Presentations

- Keeton, K.A., A. Blanchette, S.M. Benson, L.T. Covell, A.K. Madl. 2024. Analysis and comparison of nicotine pharmacokinetics of modern oral nicotine pouches. Poster Presentation 48 at the 77th Tobacco Science Research Conference, September 8-11, 2024, Atlanta, GA.
- Madl, A.K. 2024. Toxicology of synthetic vitreous fibers (SVFs): Historical overview and outlook for next generation new approach methods (NAMs). 22nd International Congress European Society of Toxicology In Vitro, June 3-6, 2024, Prague, Czech Republic.
- Vincent, M., O'Neil, H.C., Maier, A., Buerger, A.N. and Madl, A.K. 2022. Analysis of toxicity assay options for data poor chemical inhalation limit setting: Flavors as a case study. 75th Tobacco Science Research Conference, September 12-14, 2022, New Orleans, LA.
- More, S., Madl, A.K., Thornton, S. and Unice, K. 2022. Application of pharmacokinetic modelling to predict nicotine blood profiles associated with varying e-liquid nicotine protonation. 75th Tobacco Science Research Conference, September 12-14, 2022, New Orleans, LA.
- O'Neill, H.C., D.R. Cheatham, N. Mandava, E.J. de Gandiaga, A.M. Powell, M. Maddaloni, and A.K. Madl. 2022. Terpene inhalation in vaping products – What do we know about safety? Cannabis Science Conference, West, May 18-20, 2022, Long Beach, CA.

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- Parker, J., A.K. Madl, A.D.G Jones, D.J. Lauer, R.K. Brewster, and C. Boles. 2021. Microorganisms and associated toxins in cigarettes, ENDS, and other tobacco-related products: Current state-of-the-science and applications for microbial risk assessment. Tobacco Science Research Conference, August 29-31, 2021, Boston, MA.
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- Dimitri, J., B. Brooks, A. Burdick, B. Tvermoes, W.F. Davis, M. Alphonse, J. Mason, R. Sinor, D. Huet, M. Zarick, G. Morrison, R. Melville, E. Timlin, M. Mueller, K. Unice, and A. Madl. 2017. Derivation of an occupational exposure limit for indium and indium compounds. Poster presentation at The American Industrial Hygiene Conference & Exposition (AIHce) in Seattle, WA. June 4-7, 2017.
- Pinkerton, K.E. and A.K. Madl 2016. Environmental and biological impact of nanoparticles and manufacturing. Podium presentation within symposium, Indoor Air Pollution: New Risks and Health Effects at the American Academy of Allergy Asthma & Immunology Annual Meeting (AAAAI) in Los Angeles, CA. March 4-7, 2016.
- Pinkerton, K.E., C.M. Carosino, L.E. Plummer, and A.K. Madl. 2014. Nanoparticles, respiratory-based injury and the role of oxidant stress. Podium presentation within symposium, Assessing the Risks of Engineered Nanomaterials: Lessons from Combustion Nanoparticles at the Society for Risk Analysis Annual Meeting (SRA) in Denver, CO. December 7-10, 2014.
- Pinkerton, K.E. and Madl, A.K. 2014. The safety of nanomaterials from a human exposure perspective. Podium presentation at the 24th Annual International Conference on Soil, Water, Energy, and Air for the Association for Environmental Health and Sciences (AEHS) Foundation in San Diego, CA. March 17-20, 2014.
- Pinkerton, K.E., Madl, A.K., Silva, R.M., Anderson, D., Van Winkle, L.S. 2013. Pulmonary effects of nanoparticles. Podium presentation at the 15th International Conference of the Pacific Basin Consortium for Environment and Health, "Environmental Exposure in Indigenous Communities" in Honolulu, HI. September 24-27, 2013.
- Sahmel, J., C.A. Barlow, A.M. Burns, P.K. Scott, A.K. Madl, J.L. Henshaw, and D.J. Paustenbach. 2013. Measurement of airborne asbestos fiber settling rates in a simulation study of clothes handling. Session: Exposure Assessment Strategies. Podium presentation at The American

Industrial Hygiene Conference & Exposition (AIHce) in Montreal, Quebec, Canada. May 18-23, 2013.

Gaffney, S.H., B. Donovan, D.J. Paustenbach, J. Sahmel, C.A. Barlow, A.K. Madl, J.L. Henshaw, R.J. Lee, and D. Van Orden. 2013. Evaluation of potential para-occupational exposure to chrysotile asbestos during laundering activities through a simulation study. Session: Exposure Assessment Strategies. Podium presentation at The American Industrial Hygiene Conference & Exposition (AIHce) in Montreal, Quebec, Canada. May 18-23, 2013.

Barlow, C.A., J. Sahmel, A.K. Madl, B. Donovan, S. Gaffney, J. Henshaw, R.J. Lee, D. Van Orden, and D.J. Paustenbach. 2012. Evaluation of chrysotile fiber adherence to clothing exposed to known airborne asbestos concentrations before and after handling and shaking out of the clothing. Abstract W4-F.1. Society for Risk Analysis, 2012 Annual Meeting, December 9-12, 2012. San Francisco, CA.

Sahmel, J., C.A. Barlow, B. Donovan, S. Gaffney, A.K. Madl, J. Henshaw, R.J. Lee, D. Van Orden, and D.J. Paustenbach. 2012. Evaluation of potential take home exposure during laundering activities: A simulation study of airborne chrysotile concentrations associated with handling clothing exposed to known levels of airborne asbestos. Abstract P.115. Society for Risk Analysis, 2012 Annual Meeting, December 9-12, 2012. San Francisco, CA.

Madl, A.K., I.G. Bebenek, M. Kovoichich, K. Unice, M. Kreider, and M.M. Abramson. 2012. Health risk ranking framework for the life cycle of nanomaterial-containing products: Comparison of industrial versus consumer application settings. Poster presentation at the Annual Meeting of the American College of Toxicology, November 4-7, 2012. Orlando, FL.

Sahmel, J., C.A. Barlow, B. Donovan, S. Gaffney, A.K. Madl, J. Henshaw, R.J. Lee, D. Van Orden, and D.J. Paustenbach. 2012. Evaluation of potential take home exposure during laundering activities: A simulation study of airborne chrysotile concentrations associated with handling clothing exposed to known levels of airborne asbestos. Poster presentation at the Annual International Society of Exposure Science Conference, October 28 - November 1, 2012. Seattle, WA.

Barlow, C.A., J. Sahmel, A.K. Madl, B. Donovan, S.H. Gaffney, J. Henshaw, R.J. Lee, D. Van Orden, and D.J. Paustenbach. 2012. Evaluation of chrysotile fiber adherence to clothing exposed to known airborne asbestos concentrations before and after handling and shaking out of the clothing. Poster presentation at the Annual International Society of Exposure Science Conference, October 28 - November 1, 2012. Seattle, WA.

Madl, A.K., K.M. Unice, M.L. Kreider, M. Kovoichich, and I.G. Bebenek. 2012. Health risk ranking framework for the life cycle of nanomaterial-containing products. Poster presentation at the TechConnect World 2012 - Nanotech, Microtech, Biotech, Cleantech Joint 2012 Conferences, June 18 - 21, 2012. Santa Clara, CA.

Madl, A.K. 2011. Nanotoxicology and safety assessment. Tennessee Valley Section, American Industrial Hygiene Association Local Section Workshop. October 19, 2011, Knoxville, TN.

Madl, A.K. 2011. Nanotoxicology and safety assessment: An imperative current view. HBA Global Exposition and Conference. June 28-30, 2011. New York, NY.

Madl, A.K., K.D. Devlin, D. Hollins, E. Donovan, P. Dopart, and P. Scott. 2011. Airborne asbestos concentrations associated with replacement of internal valve gaskets and packing. Platform presentation at the American Industrial Hygiene Conference & Exhibition (AIHce). May 14-19, 2011. Portland, OR.

- Perez, A.L., C.L. Chen, J.J. Keenan, W.D. Cyr, B.L. Donovan, S.E. Serrano, L. Vishneyskaya, and A.K. Madl. 2010. An analysis of the proposed benefits and risks of nanotechnology-enabled water treatment. Poster presentation at Society of Environmental Toxicology and Chemistry (SETAC) 31st Annual Meeting. Abstract #WP212. November 7-11. Portland, OR.
- Madl, A.K. 2010. Considering physicochemical characteristics of nanomaterials under a risk assessment paradigm. New York Society of Cosmetic Chemists Spring Seminar, Nanotechnology — The Good, The Frightful, and The Mysterious. April 21, 2010. West Orange, NJ.
- Madl, A.K. 2010. Considering nanomaterials in the risk assessment paradigm: The role of nanoparticle physicochemistry. Rubber Division, American Chemical Society, Spring 177th Technical Meeting. April 26, 2010. Akron, OH.
- Madl, A.K. 2010. Risk assessment of nanoparticles: Present challenges and future needs. Invited platform presentation at the American Industrial Hygiene Association, Yuma Pacific-Southwest Section, 35th Annual Meeting. January 13-15, 2010. Irvine, CA.
- Madl, A.K. 2009. Nanomaterials: Health hazards or benefits? The role of particle physicochemistry. Platform presentation at the Northern California Chapter, Society of Toxicology. October 8, 2009. Oakland, California.
- Paustenbach, D.J., J.S. Knutsen, D.M. Hollins, J.E. Sahmel and A.K. Madl. 2009. Comparison of modeled and measured concentrations of airborne benzene from the use of petroleum-based solvents spiked with low levels of benzene. Poster presentation at the 2009 Benzene Symposium on Health Effects and Mechanisms of Bone Marrow Toxicity Implications for t-AML and the Mode of Action Framework. September 7-11, 2009. Munich, Germany.
- Madl, A.K. and K.E. Pinkerton. 2009. Health effects of inhaled engineered and incidental nanoparticles. Platform presentation at The Genetic and Environmental Toxicology Association of Northern California. June 24, 2009. Oakland, California.
- Madl, A.K. 2009. Simulation studies to assess historical exposure and health risk. Platform presentation and session arranger for Roundtable (RT 202): Approaches of Quantitative Exposure Reconstruction: From Biomonitoring to Modeling at the American Industrial Hygiene Conference & Exhibition (AIHce). June 1-4, 2009. Toronto, Canada.
- Madl, A.K. 2009. Physicochemical characteristics of nanoparticles that determine toxicity. Platform presentation and session arranger for Roundtable (RT 228): Engineered Nanomaterials: Translating Animal Studies to Safety in the Workplace at the American Industrial Hygiene Conference & Exhibition (AIHce). June 1-4, 2009. Toronto, Canada.
- Madl, A.K., S.V. Teague, T. Guo, Y. Qu and K.E. Pinkerton. 2009. Novel system for delivering aerosolized nanoparticles in experimental inhalation studies. Platform presentation for podium session (PO 128): Nanotechnology at the American Industrial Hygiene Conference & Exhibition (AIHce). June 1-4, 2009. Toronto, Canada.
- Hollins, D., A.K. Madl, D. Paustenbach, and J. Knutsen. 2009. Evaluation of exposures to airborne asbestos from work on suspected ACMs on maritime shipping vessels (1978-1991). Platform presentation for podium session (PO 135): Asbestos and Benzene Exposure Assessment at the American Industrial Hygiene Conference & Exhibition (AIHce). June 1-4, 2009. Toronto, Canada.

- Hollins, D., A.K. Madl, D. Paustenbach, J. Balzer, and K. Unice. 2009. Bricklayer exposures to airborne asbestos in steel mills (1972-1982): An updated analysis. Platform presentation for podium session (PO 135): Asbestos and Benzene Exposure Assessment at the American Industrial Hygiene Conference & Exhibition (AIHce). June 1-4, 2009. Toronto, Canada.
- Gaffney, S., A.K. Madl, D. Paustenbach, and J. Balzer. 2009. Airborne asbestos concentrations associated with heavy equipment brake removal. Platform presentation for podium session (PO 135): Asbestos and Benzene Exposure Assessment at the American Industrial Hygiene Conference & Exhibition (AIHce). June 1-4, 2009. Toronto, Canada.
- Madl, A.K., K. Durinick, A. Lam, T. Guo, S.V. Teague, Y. Qu and K.E. Pinkerton. 2009. Pulmonary effects from acute exposure to aerosolized single-walled carbon nanotubes. Abstract #30. Poster presentation at the University of California Toxic Substances Research & Teaching Program (UC TSR&TP) Conference. May 1-2, 2009, Berkeley, CA.
- Madl, A.K. Teague, S.V., T. Guo, Y. Qu and K.E. Pinkerton. 2009. Aerosolization delivery system of airborne nanoparticles for nose-only inhalation studies. Abstract #29. Poster presentation at the University of California Toxic Substances Research & Teaching Program (UC TSR&TP) Conference. May 1-2, 2009, Berkeley, CA.
- Madl, A.K. 2009. Understanding nanoparticles using a risk assessment paradigm. Presentation for the Sacramento Local Section, American Industrial Hygiene Association (AIHA). March 12, 2009, Sacramento, CA.
- Madl, A.K. 2009. Understanding nanoparticles using a risk assessment paradigm. Webinar for the American Industrial Hygiene Association (AIHA). January 27, 2009.
- Madl, A.K. and Sweet, L. 2009. Understanding nanoparticles using a risk assessment paradigm. In Webinar: Nanotechnology: What the Life Sciences Industry Needs to Know About Managing Its Risks. Center for Business Intelligence, October 22, 2008.
- Madl, A.K. 2008. Toxicology of engineered nanoparticles. 25th Annual Utah Conference on Safety & Industrial Hygiene. October 16-17, 2008. Salt Lake City, UT.
- Madl, A.K. 2008. General overview of nanomaterials: What they are, how they are made, and what they are used for. The Teratology Society Annual Meeting. June 28-July 2, 2008. Monterey, CA.
- Madl, A.K. 2008. Exposure to engineered nanoparticles and building a framework for assessing their health risk. Platform presentation and session arranger for Roundtable (RT 222) at the American Industrial Hygiene Conference & Exhibition (AIHce). May 31-June 5, 2008. Minneapolis, MN.
- Knutsen, J.S., D. Murbach, D.J. Paustenbach, A.K. Madl. 2008. Comparison of modeled and measured concentrations of airborne benzene from the use of petroleum-based solvents spiked with low levels of benzene. Platform presentation for podium session (PO 109) at the American Industrial Hygiene Conference & Exhibition (AIHce). May 31-Jun 5, 2008. Minneapolis, MN.
- Gaffney, S.H., M.A. McKinley, A.K. Madl, D. Paustenbach. 2008. Validation of two different exposure models using the results of a simulation study involving exposure to methanol vapors during the cleaning of semiconductor wafers. Platform presentation for podium session (PO 109) at the American Industrial Hygiene Conference & Exhibition (AIHce). May 31-Jun 5, 2008. Minneapolis, MN.

- Madl, A.K. 2007. Panel discussion for nanotechnology update for IHS: Toxicology and exposure assessment. CoPresenters/Panelists B. Kelman, C. Geraci, M. Hoover, V. Castranova. Teleweb online class by the American Industrial Hygiene Association (AIHA). Jan 31, 2007.
- Robinson, K.D., D.J. Paustenbach, A.D. Phelka, and A.K. Madl. 2007. Factors influencing the development of warnings on regulated and non-regulated consumer products. Platform presentation at the International Society of Exposure Analysis (ISEA) Conference. October 14-18, 2007. Durham, NC.
- Murbach, D.M., E.M. English, J.S. Knutsen, D.J. Paustenbach, and A.K. Madl. 2007. Reconstruction of airborne benzene exposures associated with the use of commercial products containing solvents. Poster presentation at the International Society of Exposure Analysis (ISEA) Conference. October 14-18, 2007. Durham, NC.
- Gaffney, S.H., E.C. Moody, M.A. McKinley, J.S. Knutsen, A.K. Madl, and D.J. Paustenbach. 2007. Worker exposure to methanol vapors during cleaning of semiconductor wafers in a manufacturing setting: Results of a simulation study. Platform presentation at the International Society of Exposure Analysis (ISEA) Conference. October 14-18, 2007. Durham, NC.
- Jiang, G.C.T., A.K. Madl, D.M. Murbach, K.A. Fehling, B.L. Finley, and D.J. Paustenbach. 2007. Exposure to chrysotile asbestos associated with handling, unpacking, and repacking boxes of automobile clutch discs. Platform presentation at the International Society of Exposure Analysis (ISEA) Conference. October 14-18, 2007. Durham, NC.
- Madl, A.K., K.M. Unice, J.L. Brown, M.E. Kolanz, and M.S. Kent. 2007. Exposure-response analysis for beryllium sensitization and chronic beryllium disease among workers in a beryllium metal machining plant. Platform presentation for Professional Development Course (PDC 603) and Roundtable (PO 106) at the American Industrial Hygiene Conference & Exhibition (AIHce). June 2-7, 2007. Philadelphia, PA.
- Williams, P., J. Knutsen, C. Atkinson, A.K. Madl, and D. Paustenbach. 2006. Airborne concentrations of benzene associated with the historical use of Liquid Wrench®. Poster presentation at the International Society of Exposure Analysis (ISEA) and International Society of Environmental Epidemiology (ISEE) Conference. September 2-6, 2006. Paris, France.
- Williams, P.R.D., J.S. Knutsen, C. Atkinson, A.K. Madl, and D. J. Paustenbach. 2006. Reconstruction of benzene exposures during the simulated use of a penetrating and derusting agent. Poster presentation at the Society of Toxicology (SOT) Annual Meeting. March 5-9, 2006. San Diego, CA.
- Murbach, D., P.S. Chapman, A.K. Madl, K.M. Unice, J.L. Brown, D.J. Paustenbach. 2006. Evaluation of bricklayer exposures to airborne asbestos in steel mills (1972-1981). Poster presentation at the International Society of Exposure Analysis (ISEA) and International Society of Environmental Epidemiology (ISEE) Conference. September 2-6, 2006. Paris, France.
- Murbach, D., P.S. Chapman, A.K. Madl, and D.J. Paustenbach. 2006. Evaluation of background exposures to airborne asbestos on maritime shipping vessels (1972-1992). Poster presentation at the International Society of Exposure Analysis (ISEA) and International Society of Environmental Epidemiology (ISEE) Conference. September 2-6, 2006. Paris, France.
- Williams, P.R.D., J.S. Knutsen, C. Atkinson, A.K. Madl, and D. J. Paustenbach. 2006. Reconstruction of benzene exposures during the simulated use of a penetrating and de-

rusting agent. American Industrial Hygiene Conference & Exhibition (AIHce). May 15-18, 2006. Chicago, Illinois.

Madl, A.K., K.M. Unice, J.L. Brown, M.E. Kolanz, and M.S. Kent. 2006. Analysis of beryllium exposure among beryllium sensitization and chronic beryllium disease workers in a beryllium metal machining plant: Implications for an occupational exposure limit. Poster presentation at the American Industrial Hygiene Conference & Exhibition (AIHce). May 14-18, 2006. Chicago, IL. Awarded "Best in Session".

Madl, A.K., E.P. Donovan, M.A. Kelsh, and D.J. Paustenbach. 2006. Assessment of exposure-response patterns for beryllium sensitization and chronic beryllium disease. Poster presentation at the American Industrial Hygiene Conference & Exhibition (AIHce). May 14-18, 2006. Chicago, IL. Awarded "Best in Session".

Madl, A.K., M.A. Kelsh, and D.J. Paustenbach. 2005. Exposure and the prevalence of chronic beryllium disease and beryllium sensitization. Poster presentation at the International Society of Exposure Analysis (ISEA) Annual Meeting. October 30-November 3, 2005. Tucson, AZ.

Madl, A.K., K. Clark, and D.J. Paustenbach. 2005. Airborne benzene exposure of mechanics and gasoline service station attendants. Poster presentation at the International Society of Exposure Analysis (ISEA) Annual Meeting. October 30-November 3, 2005. Tucson, AZ.

Paustenbach, D.J., T. Lee, A.K. Madl, K. Clark, and K.A. Fehling. 2004. Chrysotile asbestos exposure associated with removal of automobile exhaust systems (circa 1950-1974): Preliminary findings of a simulation study. Platform presentation at the International Society of Exposure Analysis (ISEA) 14th Annual Conference. Philadelphia, PA.

Mangold, C., K. Clark, A.K. Madl and D.J. Paustenbach. 2004. An evaluation of historical exposure to airborne asbestos by bystanders and workers during the installation and removal of gaskets and packing (1982-1991). Platform presentation at the International Society of Exposure Analysis (ISEA) 14th Annual Conference. Philadelphia, PA.

Paustenbach, D.J., K. Clark, A.K. Madl, and C. Mangold. 2004. Occupational exposure to airborne asbestos during installation and removal of asbestos-containing gaskets and packings: A review and interpretation of published and unpublished studies. Poster presentation at the International Society of Exposure Analysis (ISEA) 14th Annual Conference. Philadelphia, PA.

Madl, A.K. 2002. Estimating airborne concentrations of benzene due to diesel locomotive exhaust in a roundhouse. Society of Risk Analysis (SRA). December 10, 2002. New Orleans, Louisiana.

Madl, A.K., M.A. Kelsh, and D.J. Paustenbach. 2002. Studies of beryllium-exposed workers: Understanding the prevalence of chronic beryllium disease and beryllium sensitization. Conference of the International Society of Exposure Analysis (ISEA) and Environmental Epidemiology (ISEE). August 11-15, 2002. Vancouver, B.C. Canada.

Kent, M., T. Robins, A.K. Madl, M. Goodman, and D.J. Paustenbach. 2000. Alveolar-deposited airborne particles of beryllium as a predictor of the prevalence of disease in a beryllium processing facility. Poster presentation at the American Industrial Hygiene Conference and Exposition (AIHce). May 20-25, 2000. Orlando, FL.

Bernhardt, T.C., A.K. Madl, K.A. Exuzides, and P.J. Sheehan. 1999. Chemical fingerprinting for litigation support—A case study of effective environmental forensics. Poster presentation at the Annual Meeting of the Society for Risk Analysis (SRA). December 5-8, 1999. Atlanta, GA.

Madl, A.K., R.M. Kalmes, and D.J. Paustenbach. 1999. Community one-hour inhalation exposure limits for chemical irritants among five agencies in the United States. Presented at the American Industrial Hygiene Conference and Exposition (AIHce). June 7–9, 1999. Toronto, Canada.

Madl, A.K., D.W. Wilson, and K.E. Pinkerton. 1996. Components of particle clearance determined by using different colored fluorescent microspheres. Presented at the Sixth International Conference of Fibrous and Non-Fibrous Particles. Lake Placid, NY.

Ramsey, A.K. and G.J. Kost. 1992. Glutathione peroxidase levels in the juvenile and adult rabbit heart before and during ischemia. Presented at the California Affiliate, American Heart Association, Cardiovascular Young Investigator Conference. Asilimar, CA.

Professional and Academic Lectures and Courses

Madl, A.K. Setting standards and basics of risk assessment. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. March 6, 2024.

Madl, A.K. Setting standards and basics of risk assessment. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. March 4, 2022.

Madl, A.K. Setting standards and basics of risk assessment. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. February 22, 2020.

Madl, A.K. Setting standards and basics of risk assessment. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. February 26, 2018.

Madl, A.K. Setting standards and basics of risk assessment. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. March 11, 2016.

Madl, A.K. Setting standards and basics of risk assessment. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. March 14, 2014.

Madl, A.K. Understanding the science of nanotechnology: Implications of toxicology, exposure, and risks. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. March 12, 2014.

Madl, A.K. Setting standards. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. March 16, 2012.

Madl, A.K. 2011. The derivation of occupational exposure limits. Professional Development Course (PDC 115) for the American Industrial Hygiene Conference & Exhibition (AIHce). May 14, 2011. Portland, OR.

- Madl, A.K. 2010. The FUN of Aerosols: Fine, ultrafine, and nano particles in workplace atmospheres. Professional Development Course (PDC 429) for the American Industrial Hygiene Conference & Exhibition (AIHce). May 22-27, 2010. Denver, CO.
- Madl, A.K. 2010. The derivation of occupational exposure limits. Professional Development Course (PDC 116) for the American Industrial Hygiene Conference & Exhibition (AIHce). May 22-27, 2010. Denver, CO.
- Madl, A.K. Occupational toxicology. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. May 9, 2007 and February 17, 2010.
- Madl, A.K. Setting standards. University of California, Davis, School of Veterinary Medicine, Department of Molecular Biosciences Course 254 – Toxicology of the Respiratory System. Instructor, K.E. Pinkerton. June 1, 2007 and March 12, 2010.
- Madl, A.K. 2002. Dose reconstruction based on two railroad industry simulation studies. Workshop on Dose Reconstruction in the Occupational Setting. 17th Annual Professional Conference on Industrial Hygiene (PCIH). American Industrial Hygiene Association (AIHA), Academy of Industrial Hygiene. September 28- October 1, 2002. Cincinnati, Ohio.
- Paustenbach, D.J., J. Tsuji, Y. Lowney, and A.K. Madl. 2002. Assessing children's health and exposure: A case involving chromated copper arsenate treated wood. Workshop on Recent Improvements in the Practice of Risk Assessment as Illustrated through Case Studies. 18th Annual International Conference on Contaminated Soils, Sediments, and Water. October 22, 2002. Amherst, Massachusetts.
- Paustenbach, D.J., B.L. Finley, and A.K. Madl. 2002. Quantitating dose and risk: A case involving chromium in groundwater. Workshop on Recent Improvements in the Practice of Risk Assessment as Illustrated through Case Studies. 18th Annual International Conference on Contaminated Soils, Sediments, and Water. October 22, 2002. Amherst, Massachusetts.
- Finley, B.L., A.K. Madl, T. Widner, and P. Sheehan. 2000. Applications of quantitative exposure in evaluating historical exposures. Workshop at the 10th Annual Conference of International Society of Exposure Analysis (ISEA), Exposure Analysis in the 21st Century: Integrating Science, Policy, and Quality of Life. October 24-27, 2000. Monterey, CA

Grants

T231R4957 – Kent E. Pinkerton, Ph.D. and Tran Nguyen, Ph.D. (Principal Investigators)

Tobacco Related-Disease Research Program (2022 – 2025)

Role: Co-Investigator

Chemistry-Derived Toxicity of E-Cigarette Aerosols

The purpose of this research is to investigate how vaping nicotine or nicotine salts and certain flavor additives at different device operation conditions (coil type, temperature, puffing) can impact respiratory health through their impact on the aerosol emissions. Short-term and longer-term exposure in cell culture and in mice to e-cigarette aerosols will be evaluated for inflammation, oxidative stress, and changes in cell/tissue function, which in turn will be linked to chemical composition of the e-cigarette aerosols. Human health risk assessment methods will be applied to understand how the findings from the chemistry, cell culture models, and mouse inhalation studies apply to human health and disease. Funding: \$1,157,292

271R-0049 – Kent E. Pinkerton, Ph.D. (Principal Investigator)

Tobacco Related-Disease Research Program; April 1, 2018 – March 31, 2022

Role: Co-Investigator

E-cigarette Vaping, Chemical Composition and Lung Toxicity

The purpose of this research is to characterize the chemical profile of e-cigarette "smoke" (defined here as a mixture of vapor and aerosol particles) and the implications for respiratory health effects. This research will assess how e-cigarette device and e-liquid (liquid used in e-cigarette devices) parameters influence e-cigarette smoke chemistry, specifically the production of hazardous thermal degradation products and particle size distribution. Inhalation toxicology studies will evaluate how differences in e-cigarette vapor/aerosol characteristics under varying e-cigarette device and e-liquid parameters influence effects in the respiratory tract. Funding: \$910,493

1U01ES020127-01/5U01ES020127-02 – Kent E. Pinkerton, Ph.D. (Principal Investigator)

NIEHS; Sept 27, 2010 – April 30, 2016

Role: Co-Investigator

Engineered Nanomaterials: Linking Physical and Chemical Properties to Biology

The goal of this project is to research the health effects of engineered carbon-based nanomaterials, single- and multi-walled carbon nanotubes, and the mechanisms by which nanomaterial physicochemistry influences regional and local cellular injury, particle fate and transport, and expression of markers of oxidative stress in the lungs and extrapulmonary organs. Funding: \$2,455,168

3RC1ES018232-01S1 – Kent E. Pinkerton, Ph.D. (Principal Investigator)

NIEHS; Sept 25, 2009 – June 30, 2011

Role: Co-Investigator

Novel Approaches to Evaluate Carbon Nanotube Health Impacts

The goal of this project is to develop and utilize a novel inhalation delivery system to evaluate the respiratory effects of inhaled single-walled carbon nanotubes and investigate the role nanomaterial physicochemistry has in influencing regional and local cellular injury, biochemical homeostasis and cellular remodeling in the lungs. Funding: \$49,252

UCTSR&TP – Amy K. Madl (Principal Investigator)

Role: Principal Investigator; July 1, 2008 – June 30, 2010

Pulmonary and Extrapulmonary Health Effects of Inhaled Single-Walled Carbon Nanotubes: Role of Particle Physicochemistry, Transport, Induced Oxidative Stress

This research is focused on the health effects of single-walled carbon nanotubes delivered via inhalation and the influence of nanomaterial characteristics, such as presence of residual metal catalysts, as well as the particle structure, morphology, and surface reactivity on the fate and transport and biological responses in pulmonary and extrapulmonary organs. Student Fellowship from the University of California Toxic Substances Research & Teaching Program to the University of California, Davis led by Amy K. Madl (Principal Investigator) and Kent E. Pinkerton, Ph.D. (Advisor). Funding: \$57,822.96