

# Amanda N. Buerger, Ph.D., DABT

SENIOR SCIENTIST I

## CONTACT INFORMATION

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## PROFESSIONAL PROFILE

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Dr. Amanda Buerger is a Senior Scientist I in ToxStrategies' Health Sciences Practice. Her primary areas of experience include human health risk assessment and toxicology. She has provided support to a range of clients, including pharmaceutical companies, chemical manufacturers, universities, and producers of consumer products. She studies the health effects related to exposure to a wide range of chemicals including environmental contaminants like pesticides, industrial chemicals such as asbestos and talc, and ingredients used in consumer products like flavorants. In risk assessment, Dr. Buerger applies weight of evidence (WoE) approaches incorporating clinical, nonclinical, *in vivo*, *in vitro*, and *in silico* data. She utilizes new approach methodologies (NAMs) in her projects including applications such as the Organisation for Economic Co-ordination and Development Quantitative Structure Activity Relationship (QSAR) Toolbox and the U.S. Environmental Protection Agency Generalized Read-Across (GenRA) application. She is experienced in conducting statistical analyses using R (RStudio) and benchmark dose modeling.

Dr. Buerger has produced and contributed to a variety of products for clients including occupational exposure limit (OEL), occupational exposure banding (OEB), permissible daily exposure (PDE), and allowable daily exposure (ADE) derivation documents; U.S. Food and Drug Administration (FDA) submissions; and inhalation risk assessment courses. Dr. Buerger also has experience in providing litigation support related to pesticides, chlorine, asbestos, talc, and food flavorings.

## EDUCATION AND DEGREES EARNED

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- 2019 Doctor of Philosophy (Ph.D.), Environmental and Global Health  
University of Florida
- 2015 Bachelor of Science (B.S.), Environmental Health (major), Sustainability (minor)  
University of Notre Dame

## HONORS/AWARDS

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- 2020 Outstanding Student Research Award, University of Florida, Department of Environmental and Global Health
- 2019 Outstanding Student in Public Health Service Award, University of Florida, Department of Environmental and Global Health
- 2019 Best Paper, Environmental Toxicology and Chemistry journal
- 2018 Paper of the Year, Environmental Toxicology and Chemistry journal

## PROFESSIONAL ASSOCIATIONS

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- 2016–Present Society of Toxicology
- 2015-2021 Society of Environmental Toxicology and Chemistry (SETAC)
- 2019-2020 Membership Committee (SETAC)
- 2017-2019 North American Student Advisory Council, Member (SETAC)
- 2017-2018 North America Student Advisory Council, Southeast Chapter, Representative (SETAC)

## INVITED LECTURES

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- Buerger, AN. “Emerging contaminants and endocrine disrupting compounds.” Environmental Concepts in Public Health, Department of Environmental and Global Health, University of Florida.
- Buerger, AN. “Metabolic consequences of DEHP exposure in zebrafish: Convergence of host and microbial mechanisms.” Environmental and Global Health Seminar, University of Florida, October 3, 2018.
- Buerger, AN. “Probing phthalate-induced transcriptional changes related to obesity in zebrafish.” Environmental and Global Health Seminar, University of Florida, September 20, 2016.

## SELECTED PROFESSIONAL EXPERIENCE

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### *NAMs and Computational Toxicology*

Applied approaches like read-across and chemical grouping in risk assessment and exposure limit derivation for categories of flavorants, taking into account aspects of toxicokinetics and toxicodynamics from various lines of

evidence. Employed predictive toxicology approaches and tools, including QSAR modeling, to inform the toxicology of various substances in numerous inhalation risk assessments. Applied dosimetric tools in inhalation risk assessment to inform human equivalent concentration derivation. Created, managed, analyzed, and maintained quality control of large datasets in Excel and R software, including the calculation of hazard quotients and cancer risks.

### ***Exposure Limit Derivation***

Managed and contributed to a variety of occupational toxicology and risk assessment projects, and critically reviewed proposed and existing regulatory exposure limits for numerous chemicals. Contributed to the development of hazard banding frameworks for biocatalytic and medicinal enzymes based on sensitization potential, informed by data from clinical, *in vivo*, *in vitro*, and *in silico* streams of evidence. Generated standard operating procedures for derivation of OELs and assignment of OEBs.

### ***Exposure and Risk Assessments***

Supported clients in various sectors including pharmaceuticals, foods and flavorings, and biosolids, and worked on projects related to various acute respiratory irritants. Conducted risk assessments for a range of populations including consumers and workers. Assisted with the development and execution of inhalation risk assessment courses for a variety of clients. Created reports regarding the effects of acute exposures on chronic health outcomes, including aspects related to odor detection, respiratory irritation, and sensory irritation.

## **JOURNAL PEER REVIEWER**

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*Environmental Pollution*

*Science of the Total Environment*

*Chemosphere*

*Toxics*

## **MANUSCRIPTS**

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Russel AJ, Vincent M, **Buerger AN**, Dotson S, Lotter J, Maier A. 2024. Establishing short-term occupational exposure limits (STELs) for sensory irritants using predictive and in silico respiratory rate depression (RD50) models. *Inhal Toxicol* 36(1):13–25; doi: 10.1080/08958378.2023.2299867.

**Buerger AN**, Allen HL, Divis HR, Encina E, Parker J, Boles C. 2023. The worker microbiome and enviromiomes in the agricultural industry: a narrative review of current applications and understanding. *Journal of Public Health and Emergency* 7:21.

**Buerger AN**, Massarsky A, Russell A, Zoghby N, Hirn C, Mucs D, et al. 2023. Evaluation of chemical grouping workflows for flavor inhalation risk assessment: selected furan moiety-containing chemicals as a case study. *Comp Tox* 26:100269.

Boles C, Zisook R, **Buerger AN**, Hamaji C, Mathis C, Lauer D, et al. 2022. Semi-quantitative microbial risk assessment: a narrative review and proposed framework for health and safety practitioners. *Journal of Public Health and Emergency* 6:34.

- Han AA, **Buerger AN**, Allen H, Vincent M, Thornton SA, Unice K, et al. 2022. Assessment of ethanol exposure from hand sanitizer use and potential for developmental toxicity in nursing infants. *J Appl Toxicol* 42(9):1424–1442.
- Martyniuk CJ, **Buerger AN**, Vespalcova H, Rudzanova B, Sohan SR, Hanlon AT, et al. 2022. Sex-dependent host-microbiome dynamics in zebrafish: Implications for toxicology and gastrointestinal physiology. *Comp Biochem Physiol Part D Genomics Proteomics* 42:100993.
- Buerger AN**, Parente CE, Harris JP, Watts EG, Wormington AM, Bisesi JH. 2022. Impacts of diethylhexyl phthalate and overfeeding on physical fitness and lipid mobilization in *Danio rerio* (zebrafish). *Chemosphere* 295:133703.
- Barnett LMA, Kramer NE, **Buerger AN**, Love DH, Bisesi JH, Cummings BS. 2021. Transcriptomic analysis of the differential nephrotoxicity of diverse brominated flame retardants in rat and human renal cells. *Int J Mol Sci* 22(18):10044.
- Parker JA, Boles C, **Buerger AN**, Fung ES, Maier A. 2021. Derivation of an occupational exposure limit for  $\beta$ -glucans. *Regul Toxicol Pharmacol* 123:104959.
- Adamovsky O, **Buerger AN**, Vespalcova H, Sohag S, Hanlon A, Ginn P, et al. 2020. Evaluation of microbiome-host relationships in the zebrafish gastrointestinal system reveals adaptive immunity is a target of bis (2-ethylhexyl) phthalate (DEHP) exposure. *Environ Sci Technol* 54(9):5719–5728.
- Parker J, Boles C, Leleck O, **Buerger AN**, Egnot N, Sunderman A, et al. 2020. Advancing toward normal operations for arenas and stadiums. *Toxicol Ind Health* 36(9):718–727.
- Buerger AN**, Dillon DT, Schmidt J, Yang T, Zubcevic J, Martyniuk CJ, et al. 2020. Gastrointestinal dysbiosis following diethylhexyl phthalate exposure in zebrafish (*Danio rerio*): Altered microbial diversity, functionality and network connectivity. *Environ Pollut* 265(Pt B):114496.
- Buerger AN**, Schmidt J, Chase A, Paixao C, Patel TN, Brumback BA, et al. 2019. Examining the responses of the zebrafish (*Danio rerio*) gastrointestinal system to the suspected obesogen diethylhexyl phthalate. *Environ Pollut* 245:1086–1094.
- Lavelle C, Smith LC, Bisesi JH, Yu F, Silva-Sanchez C, Moraga-Amador D, **Buerger AN**, et al. 2018. Tissue-based mapping of the fathead minnow (*Pimephales promelas*) transcriptome and proteome. *Front Endocrinol* 9:611.
- Adamovsky O, **Buerger AN**, Wormington AM, Ector N, Griffitt RJ, Bisesi JH, et al. 2018. The gut microbiome and aquatic toxicology: An emerging concept for environmental health. *Environ Toxicol Chem* 37(11):2758–2775.
- Buerger AN**, Howe K, Jacquart E, Chandler M, Culley T, Evans C, et al. 2015. Risk assessments for invasive plants: a Midwestern US comparison. *Invasive Plant Science and Management* 9(1):41–54.

## WHITE PAPERS

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- LeClaire RD, McGill A, **Buerger AN**, Boles C, Cappello T, Parker J. 2021. Promoting health equity among part-time and temporary workers of large event venues.
- Boles C, Leleck O, **Buerger AN**, Parker J, Egnot N, Sunderman A. 2020. Advancing towards normal operations for arenas and stadiums.
- Boles C, Leleck O, **Buerger AN**, Parker J, Egnot N, Sunderman A. 2020. Advancing towards normal operations for sporting venues.
- Boles C, Leleck O, **Buerger AN**, Parker J, Egnot N, Sunderman A. 2020. Advancing towards normal operations for entertainment venues.

Lynch H, **Buenger AN**, Nembhard M, Hallett L. 2020. Summer camps and campgrounds: COVID-19 mitigation strategies.

## PRESENTATIONS AND ABSTRACTS

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Lynch H, O'Neill H, **Buenger AN**, Rogers K. Mode-of-action analysis of thyroid hormone effects of perfluorobutane sulfonic acid. Society of Toxicology Meeting, 2023.

Bisesi JH, **Buenger AN**, Parente C, Martyniuk CJ. Effects of endocrine disrupting compounds on host microbiome dynamics: Implications for gastrointestinal physiology and health. American Geophysical Union Fall Meeting, 2022.

Vincent M, O'Neill HC, Maier A, **Buenger AN**, Madl AK. Analysis of toxicity assay options for data poor chemical inhalation limit setting: Flavors as a case study. Tobacco Science Research Conference, 2022.

**Buenger AN**, Bates C, Boles C, Vincent M, Dotson GS. Ochratoxin A and pesticides in craft beers: A pilot study. Society of Toxicology Meeting, San Diego, CA, March 2022.

Han AA, **Buenger AN**, Allen H, Vincent M, Thornton AA, Unice K, Maier A. Assessment of ethanol exposure in nursing infants from maternal hand sanitizer use and potential for developmental toxicity. Poster presentation P514 at the Society of Toxicology (SOT) Annual Meeting & ToxExpo, San Diego, CA, March 2022.

**Buenger AN**, Boles C, Reichard J, Fung E, Dahm C, Schmid K, et al. A framework for establishing occupational exposure limits for medicinal enzymes. Poster presented at Society of Toxicology Annual Meeting, virtual event, 2021.

Fung ES, **Buenger AN**, Parker JA, Boles C, Masuada-Herrera M, Trejo-Martin A, et al. Determining occupational hazard control categories for biocatalytic enzymes. Poster presented at American College of Toxicology Annual Meeting, virtual event, 2021.

Parker JA, Boles C, **Buenger AN**, Fung ES, Maier A. Derivation of an occupational exposure limit for  $\beta$ -glucans. Poster presented at Society of Toxicology Annual Meeting, virtual event, 2021.

**Buenger AN**, Dillon DT, Martyniuk CJ, Bisesi, JH. Gastrointestinal mediated impacts on lipid metabolism following chronic exposure to a phthalate plasticizer in zebrafish. Society of Environmental Toxicology and Chemistry North America Meeting, 2019.

**Buenger AN**, Dillon DT, Martyniuk CJ, Bisesi JH. Molecular and microbial responses in the zebrafish gastrointestinal system following exposure to the suspected obesogen diethylhexyl phthalate. Society for Risk Analysis/Society for Environmental Toxicology and Chemistry Africa, 2019.

**Buenger AN**, Dillon DT, Martyniuk CJ, Bisesi JH. Coupled host and microbial responses to phthalate exposure: Implications for obesity. Society of Toxicology Meeting, 2019.

**Buenger AN**, Dillon DT, Martyniuk CJ, Bisesi JH. Host-microbiome alterations in fatty acid metabolism in *Danio rerio* following dietary phthalate exposure. Society of Environmental Toxicology and Chemistry North America Meeting, 2018.

**Buenger AN**, Martyniuk CJ, Bisesi JH. Phthalate disruption of the gastrointestinal microbiome as a potential obesogenic mechanism: A multigenerational study using *Danio rerio*. Society of Toxicology Meeting, 2018.

**Buenger AN**, Schmidt J, Martyniuk CJ, Bisesi JH. Host-microbiome responses to DEHP exposure: A multigenerational obesity study in *Danio rerio*. Society of Environmental Toxicology and Chemistry North America Meeting, 2017.

**Buerger AN**, Schmidt J, Paixao C, Tiblier A, Martyniuk CJ, Bisesi JH. Does oral exposure to phthalates alter obesity related transcriptional networks in the gastrointestinal system through PPAR $\alpha$ ? Society of Toxicology Meeting, 2017.

## TEACHING EXPERIENCE

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SETAC North America, Professional Training Course, Introduction to Microbiome Sample Collection, Sequencing, and Analysis Methods for Microbial Community Research: 16S Microbial Sequencing. 2020, 2021.

The University of Florida, Center for Pre-collegiate Education and Training, Summer Health Professional Education Program: Water Quality and Ecosystem Health.

The University of Florida, Center for Pre-collegiate Education and Training, Research Explorations: Environmental Health: Dose-Response and Daphnia Magna Toxicity Testing.

The University of Florida, Center for Pre-collegiate Education and Training, Student Science Training Program: Environmental Health and Toxicology Course.

Southeastern Society of Environmental Toxicology and Chemistry: RNA Extraction and Quantitative PCR Short Course.