National Academies Committee on Guidance on PFAS Testing and Health Outcomes

Meeting 5

Speaker and Moderator Biosketches (in alphabetical order by last name)

July 13-14th 2021

Dr. Bruce H. Alexander, Colorado State University

Bruce Alexander is Professor and Head of the Department of Environmental and Radiological Health Sciences at Colorado State University. He held a similar position in the Division of Environmental Health Sciences at the University of Minnesota School of Public Health. He is an occupational and environmental epidemiologist with research interests in environmental determinants of cancer and respiratory disease, injury prevention and control, One Health, the health of agricultural populations, and global health. In relation to the PFAS issue, he has conducted studies of mortality and cancer incidence in two groups of workers employed at PFAS manufacturing facilities. He also served as an advisor to the Minnesota Department of Health on their biomonitoring program which included monitoring of community exposure to PFAS.

Andrea Amico, Testing for Pease

Andrea Amico is a co-founder of the Testing for Pease community action group. She started advocating for more answers and action for the Pease community impacted by PFAS water contamination at the former Pease Air Force Base in Portsmouth, NH in 2014 after learning her husband and two small children were impacted by highly contaminated drinking water. She is passionate about raising awareness of PFAS water contamination, providing education to impacted communities, lowering standards for PFAS in drinking water, and collaborating with others from all aspects of PFAS (communities, physicians, legislators, researchers, government agencies, etc) to achieve a common goal of reducing PFAS exposure to impacted communities. Testing for Pease's advocacy was instrumental in securing a PFAS blood testing program and two PFAS health studies for the Pease community (CDC/ATSDR Pease Study and PFAS REACH Study with Silent Spring Institute). Andrea testified at the first hearing in the US Senate on PFAS in September 2018. She was awarded the Citizen Excellence in Community Involvement Award by US EPA Region 1 in November 2018. She also attended the President's State of the Union Address as Senator Jeanne Shaheen's guest in February 2019 to raise awareness on PFAS contamination. She is a co-founder of the National PFAS Contamination Coalition (NPCC) that formed in June 2017 to bring PFAS advocates from all over the country to organize for change at the federal level. She helped to organize the first two National PFAS Conferences held at Northeastern University in Boston, Massachusetts, in June 2017 and June 2019. In September

2019, she gave a TEDx talk on PFAS titled: PFAS and a Mother's Journey to Becoming A Clean Water Advocate. And in November 2019, she presented at the CDC's first Public Health Grand Rounds on PFAS in Atlanta, Georgia. Andrea serves on the Pease Community Assistance Panel (CAP) with ATSDR and has been a member since the CAP formed in 2016. She is the community co-chair of the Pease Restoration Advisory Board (RAB) with the US Air Force. Andrea also is a community co-chair on the City of Portsmouth Safe Water Advisory Group (SWAG). She is a community partner on the PFAS-REACH health study researching PFAS levels and immune function in children in Portsmouth, New Hampshire, and Hyannis, Massachusetts. When Andrea isn't committing her free time and passions to PFAS advocacy, she is spending time with her husband and three children in Portsmouth, New Hampshire. Andrea has a Master's Degree in Occupational Therapy and works for a neurological rehabilitation hospital where she helps facilitate rehab for patients impacted by strokes, brain injuries, spinal cord injuries, and other major illnesses to recover and regain their functional independence.

Dr. Linda Birnbaum, National Institute of Environmental Health Sciences (retired)

Linda S. Birnbaum, Ph.D., D.A.B.T., A.T.S., is the former Director of the National Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health, and the National Toxicology Program (NTP). After retirement, she was granted scientist emeritus status and still maintains a laboratory. As a board-certified toxicologist, Birnbaum served as a federal scientist for 40 years. Prior to her appointment as NIEHS and NTP Director in 2009, she spent 19 years at the U.S. Environmental Protection Agency (EPA), where she directed the largest division focusing on environmental health research. Birnbaum has received many awards and recognitions. In 2016, she was awarded the North Carolina Award in Science. She was elected to the Institute of Medicine of the National Academies, one of the highest honors in the fields of medicine and health. She was also elected to the Collegium Ramazzini, an independent, international academy comprised of internationally renowned experts in the fields of occupational and environmental health and received an honorary Doctor of Science from the University of Rochester and a Distinguished Alumna Award from the University of Illinois. She has also received Honorary Doctorates from Ben-Gurion University, Israel, and Amity University, India; the Surgeon General's Medallion 2014; and 14 Scientific and Technological Achievement Awards, which reflect the recommendations of EPA's external Science Advisory Board, for specific publications. Birnbaum is an active member of the scientific community. She was vice president of the International Union of Toxicology, the umbrella organization for toxicology societies in more than 50 countries, and former president of the Society of Toxicology, the largest professional organization of toxicologists in the world. She is the author of more than 1000 peer-reviewed publications, book chapters, abstracts, and reports. Birnbaum's own research focuses on the pharmacokinetic behavior of environmental chemicals, mechanisms of action of toxicants including endocrine disruption, and linking of real-world exposures to health effects. She is an

adjunct professor in the Gillings School of Global Public Health, the Curriculum in Toxicology, and the Department of Environmental Sciences and Engineering at the University of North Carolina at Chapel Hill, as well as in the Integrated Toxicology and Environmental Health Program at Duke University where she is also a Scholar in Residence. A native of New Jersey, Birnbaum received her M.S. and Ph.D. in microbiology from the University of Illinois at Urbana-Champaign.

Dr. Joseph Braun, Brown University

Dr. Braun is an Associate Professor in the Department of Epidemiology at the Brown University School of Public Health. He was formerly a school nurse in Milwaukee, WI before receiving his master's and doctoral degrees in Epidemiology from the University of North Carolina-Chapel Hill. He completed postdoctoral training in environmental health at the Harvard School of Public Health.

For 15 years, Dr. Braun has been committed to identifying modifiable risk factors of pediatric diseases in order to improve public health. Working with an interdisciplinary team that includes epidemiologists, biostatisticians, exposure scientists, physicians, and engineers, he studies the health effects of environmental pollutant exposures before conception and during gestation, infancy, childhood, and adolescence.

Dr. Braun's research foci includes endocrine disrupting chemicals, toxic metals, obesity, cardiometabolic health, and pediatric neurodevelopmental disorders. Dr. Braun and his research team use three prospective cohort studies in North America (HOME, MIREC, and PEACE Studies) to conduct these studies. These cohorts have been following children since before conception or during pregnancy; follow-up now continues as children transition into adolescence.

Dr. Ellen T. Chang, Exponent

Ellen T. Chang, Sc.D., is a Principal Scientist and epidemiologist in the Center for Health Sciences at Exponent, Inc., an international science and engineering consulting company in Menlo Park, California. She is also a Visiting Professor at the Sun Yat-sen University Cancer Center in Guangzhou, China, and teaches in an adjunct capacity for the Department of Epidemiology and Biostatistics at the University of California, San Francisco. Dr. Chang provides scientific consultation on the potential human health effects of various chemicals, air pollutants, metals and metalloids, fibers, pharmaceuticals, medical devices, electromagnetic fields, and nutrients, and she has conducted epidemiologic studies of the risk of malignant lymphomas, nasopharyngeal carcinoma, hepatocellular carcinoma, and other cancers. Dr. Chang earned her undergraduate degree at Harvard College in 1998 and her doctorate degree in epidemiology with a minor in biostatistics from the Harvard School of Public Health in 2003. She completed a postdoctoral fellowship in medical epidemiology and biostatistics at the Karolinska Institute in

Stockholm, Sweden, and she worked at the Cancer Prevention Institute of California and the Asian Liver Center at Stanford University before joining Exponent in 2012.

Dr. Nicholas Chartres, University of California, San Francisco

Dr. Chartres is the Associate Director of Science and Policy at UCSF's Program on Reproductive Health and the Environment and is focused on environmental health research translation methods and the promotion of evidence-based policies to prevent exposures to harmful environmental chemicals. In this role, he oversees the Navigation Guide Working Group, which is focused on increasing the knowledge and awareness of systematic review methods in environmental health and policy decision-making arenas. Dr. Chartres is part of the World Health Organization/International Labor Organization Joint Working Group on Occupational Health Systematic Review Methods, which aims to estimate the global burden of work-related disease and injury.

Dr. Jamie DeWitt, East Carolina University

Jamie DeWitt is an Associate Professor in the Department of Pharmacology & Toxicology of the Brody School of Medicine at East Carolina University. Dr. DeWitt's research focuses on effects of environmental contaminants on the adult and developing immune systems as well as on interactions between the immune and nervous systems. She is PI/Co-PI/Co-I on several funded studies concerning the immune effects of PFAS, especially those PFAS that are considered "novel" or "understudied." She received her PhDs in Environmental Science and Neural Science from Indiana University-Bloomington and completed postdoctoral training in immunotoxicology at the U.S. Environmental Protection Agency under a cooperative training agreement with the University of North Carolina.

Dr. Judy LaKind, LaKind Associates,

Judy LaKind is President of LaKind Associates, LLC, and Adjunct Associate Professor, Department of Epidemiology and Public Health, University of Maryland School of Medicine. Dr. LaKind is a health and environmental scientist with expertise in exposure science, assessment of human health risks, biomonitoring, scientific and technical analysis for regulatory support, and systematic reviews. Dr. LaKind has spoken and published extensively on exposure- and risk-related issues, including children's exposures to environmental chemicals and the presence of environmental chemicals in human milk. Dr. LaKind served as the President of the International Society of Exposure Science and currently serves on the editorial boards of the *Journal of Toxicology and Environmental Health* and *Environment International.* Dr. LaKind received her Ph.D. from the Johns Hopkins University in Geography and Environmental Engineering (1988), her M.S. from The University of Wisconsin, Madison in Geology (1984) and her B.A. from The

Johns Hopkins University in Earth and Planetary Sciences (1982).

Dr. Matthew Longnecker, Romboll

Before joining Ramboll, a consulting firm, in 2015, Dr. Longnecker was a Tenured Senior Investigator in the Epidemiology Branch of the National Institute of Environmental Health Sciences (NIEHS), one of the US National Institutes of Health. He has an MD from Dartmouth Medical School, an ScD in Epidemiology from Harvard School of Public Health, and is board certified in internal medicine. He has published over 225 scientific papers in peer-reviewed medical and scientific journals, and has an ongoing interest in contributing to and evaluating epidemiologic data that inform risk assessment. Dr. Longnecker's current research, although funded by industry, is conducted without the sponsor's interference. His research focuses on quantifying bias in epidemiologic results due to unmeasured confounding or reverse causality, and on systematic reviews of potential health effects of per- and polyfluoroalkyl substances (PFAS).

Dr. Rebecca Morgan, McMaster University

Dr. Rebecca Morgan, a health research methodologist and epidemiologist, is an Assistant Professor at McMaster University, Department of Health Research Methods, Evidence and Impact, in Hamilton, Ontario and adjunct Assistant Professor at Case Western Reserve University, School of Medicine, in Cleveland, OH. Much of Dr. Morgan's research on evidence synthesis and guideline development has focused on advancing methods for assessing environmental and occupational exposures. She joined the GRADE Working Group in 2009 and has extensive experience in teaching systematic review and guideline development methods to national and international audiences. Dr. Morgan serves as a methodology consultant to global organizations such as the Advisory Committee on Immunization Practices, Infectious Disease Society of America, European Respiratory Society, Health Canada, and the World Health Organization. Dr. Morgan is a founding member of the U.S. GRADE Network and the Executive Director of Evidence Foundation.

Dr. Jonathan Samet, Dean and Professor Colorado School of Public Health

Dr. Jonathan Samet, a pulmonary physician and epidemiologist, is Dean of the Colorado School of Public Health. His research has focused on the health risks of inhaled pollutants in outdoor air and also indoor pollutants including secondhand smoke and radon. He has also investigated the occurrence and causes of cancer and respiratory diseases, emphasizing the risks of active and passive smoking. He has served on and chaired numerous committees concerned with the environment, tobacco control, and health. Currently, he leads the Colorado COVID-19 Modeling Group, which is modeling the epidemic in Colorado for public health purposes. He was elected to

the National Academy of Medicine in 1997 and received the David Rall Medal in 2015 for his contributions.

Dr. Sheela Sathyanarayana, University of Washington

Dr. Sheela Sathyanarayana is a Professor of Pediatrics and Adjunct Professor within the Department of Environmental and Occupational Health Sciences at the University of Washington and the Seattle Children's Research Institute. Her research interests focus on exposures to endocrine disrupting chemicals and their impact on perinatal and child health. Dr. Sathyanarayana serves as the PI for The Infant Development and Environment Study. She is a co-principal investigator for the NIH Environmental Factors Affecting Child Health Outcomes PATHWAYS study at the University of Washington and the Seattle Children's Research Institute. This study combines three cohorts, GAPPS, TIDES, and CANDLE to examine environmental exposures, the placental transcriptome, and child health outcomes. She served as past chair of the US Environmental Protection Agency's Children's Health Protection Advisory Committee and as well as on the National Academies of Sciences, National Research Council Committee on Endocrine-Related Low Dose Toxicity. She currently serves on the US EPA's Scientific Advisory Committee on Chemicals for the Toxics Substances Control Act. She also practices medicine at the University of Washington Medical Center as Medical Director of the Newborn Nursery.

Dr. David A. Savitz, Brown University

David A. Savitz is Professor of Epidemiology in the Brown University School of Public Health, with joint appointments in Obstetrics and Gynecology and Pediatrics in the Alpert Medical School. His epidemiological research has addressed environmental hazards in the workplace and community, reproductive health outcomes, and environmental influences on cancer. His research includes studies of miscarriage, preterm birth, and pregnancy complications, and he has addressed health effects of nonionizing radiation, pesticides, drinking water treatment by-products, and perfluorinated compounds. Dr. Savitz is an elected member of the National Academy Medicine and was awarded the David Rall Medal for Distinguished Leadership as Chair of Study Committee.

Dr. Laurel Schaider, Silent Spring Institute

Dr. Laurel Schaider is a Research Scientist in Environmental Chemistry and Engineering at Silent Spring Institute, where she leads the Institute's water quality research on PFAS and other contaminants of emerging concern. Her research focuses on 1) characterizing PFAS exposures from drinking water, diet, and consumer products, 2) understanding health effects associated with PFAS, 3) investigating socioeconomic disparities in exposures to drinking water contaminants, and 4) working with communities to develop research studies and resources to address their concerns. Dr. Schaider is the principal investigator for the PFAS-REACH (PFAS Research, Education, and Action for Community Health) study, a researcher-community partnership that is evaluating PFAS exposures and immune system effects in children in

communities with PFAS water contamination and developing an online resource center for PFAS-affected communities. She is also the principal investigator of the Massachusetts PFAS and Your Health Study, one of seven projects within CDC's PFAS Multi-Site Health Study. She co-leads the Community Engagement Core for the STEEP (Sources, Transport, Exposure and Effects of PFASs) Superfund Research Program at the University of Rhode Island, including a study to evaluate PFAS levels in private wells on Cape Cod and identify contamination sources. She serves a technical advisor to ATSDR's Community Assistance Panel at the Pease Tradeport in Portsmouth, NH. Before joining Silent Spring Institute, she was a research associate at the Harvard T.H. Chan School of Public Health, where she currently holds an appointment as a visiting scientist. Dr. Schaider earned her master's and PhD in Environmental Engineering at the University of California, Berkeley, and a bachelor's degree in Environmental Engineering Science from MIT. Dr. Schaider served as a member of the planning committee for the 2020 National Academies Workshop on Federal Government Human Health PFAS Research.

Dr. Holger J. Schünemann, McMaster University

Holger Schünemann is a tenured professor in the Departments of Health Research Methods, Evidence, and Impact and of Medicine at McMaster University. From 2009 to 2019, he completed his two terms as Chair of Clinical Epidemiology and Biostatistics at McMaster University, widely considered the birthplace of evidence-based health care. He had trained in respiratory and exercise physiology and internal and respiratory medicine at the Medical School of Hannover and lung biology, epidemiology, *internal medicine* and *preventive medicine/public health* at the University at Buffalo, State of New York (M.Sc. Epidemiology in 1997; Ph.D. Epidemiology & Community Medicine in 2000). He was on faculty at UB and, from 2007 to 2009, interim Chair of Epidemiology at the National Cancer Institute in Rome, Italy.

Since 2000, he helped reshaping of methodology for guideline development spanning clinical medicine to public health and contributed methodologically and practically to knowledge synthesis research, foremost through his co-leadership of the **GRADE working group** that he co-chairs. He has been advisor and chair of many guideline expert groups for **WHO, the European Commission, ministries of health**, other governmental organizations and **professional societies**. He is **director of** Cochrane Canada and the McMaster GRADE center. Maintaining an active internal medicine practice fulfills his passion for patient care and ensures his research is people-oriented.

Dr. Elsie Sunderland, Harvard University

Elsie M. Sunderland is the Gordon McKay Professor Environmental Chemistry at the School of Engineering and Applied Sciences and in the Department of Environmental Health in the Harvard School of Public Health, and an affiliated faculty member of the Department of Earth and

Planetary Sciences. She is a Faculty Associate in the Harvard University Center for the Environment and the Harvard Center for Risk Analysis.

Research in the Sunderland Lab focuses on how biogeochemical processes affect the fate, transport and food web bioaccumulation of trace metals and organic chemicals. Her group develops and applies models at a variety of scales ranging from ecosystems and ocean basins (e.g., the Gulf of Maine, the North Pacific and Arctic Oceans) to global applications to characterize how changes in climate and emissions affect human and ecological health, and the potential impacts of regulatory activities. Her group also makes key measurements of chemical concentrations and reaction rates in environmental samples (natural waters, sediments, and aquatic biota) and humans (hair, blood) to parameterize and evaluate environmental models.

Ongoing research is elucidating the biogeochemical cycling of compounds with contrasting physical and chemical properties that can be used to obtain insights into the varying exposure pathways and environmental lifetimes for industrial chemicals. The innovation in this work is to quantitatively analyze the entire exposure pathway for these compounds to identify their properties in air and water (e.g., stability in the atmosphere, photodegradation in water, environmental partitioning behavior) that enhance chemical persistence and ultimate accumulation in biota.

Dr. Thomas Webster, Boston University School of Public Health

Dr. Webster has several main research areas: 1) exposure routes and health hazards of legacy and emerging compounds, especially those used in consumer products and found in the indoor environment, water or food; 2) health impacts of exposure to mixtures of chemicals, with applications in toxicology and epidemiology; 3) methodological aspects of environmental epidemiology, particularly causal inference and ecologic bias. Dr. Webster has been studying PFAS for about fifteen years. He and his colleagues have published research on exposure to PFAS via water, diet and the indoor environment as well many epidemiology papers. Recently his group has been working on the toxicology of PFAS mixtures and lipid-related outcomes.

Dr. Webster served on the National Research Council's Subcommittee on Fluoride in Drinking Water and the Institute of Medicine's Committee on Making Best Use of the Agent Orange Exposure Reconstruction Model. He participated in two recent NASEM meetings on PFAS.