



Complementary and Integrative Interventions

To Mitigate the Effects of Endocrine-Disrupting Chemicals

June 10-11, 2024



National Center for
Complementary and
Integrative Health

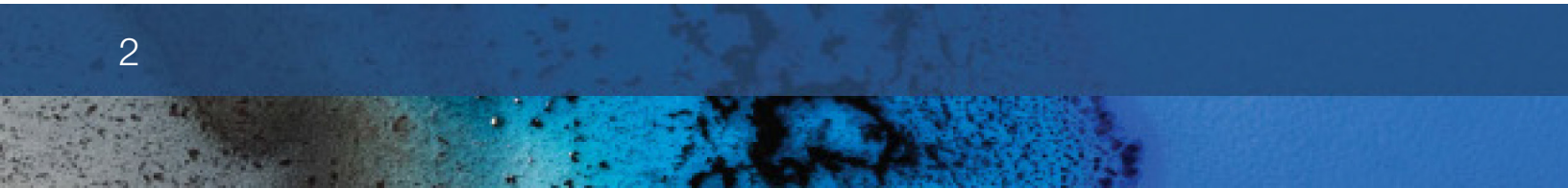


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Agenda

DAY 1: JUNE 10, 2024

9:30–9:45 a.m. | Welcome

Sekai Chideya, M.D., M.P.H. (National Center for Complementary and Integrative Health [NCCIH])
Helene M. Langevin, M.D. (NCCIH)
Richard Woychik, Ph.D. (National Institute of Environmental Health Sciences [NIEHS])
Stefan Pasiakos, Ph.D. (Office of Dietary Supplements [ODS])

9:45–10:05 a.m. | Setting the Stage: An Introduction to the EDC Landscape

Heather Patisaul, Ph.D. (NIEHS)

10:05–10:25 a.m. | Lost in Translation No Longer: Building Clinical Action From Endocrine Disruptor Science

Robert Sargis, M.D., Ph.D. (University of Illinois Hospital & Health Sciences System)

10:25 a.m.–10:40 a.m. | Joint Q&A for Drs. Patisaul and Sargis

10:40 a.m.–11:10 a.m. | Community Member Perspective

Neil McMillan (International Association of Fire Fighters)

11:10 a.m.–12:30 p.m. | Lifestyle, Including Diet, Sleep, and Physical Activity

Moderator: Michele Marcus, Ph.D., M.P.H. (Emory University)
Rita Strakovsky, R.D., Ph.D. (Michigan State University)
Karen Peterson, R.D., D.Sc. (University of Michigan)
Joseph Braun, M.S.P.H., Ph.D., R.N. (Brown University)
Michael Petriello, Ph.D. (Wayne State University)
Detlef Birkholz, M.Sc., Ph.D., P.Chem. (D.A. Birkholz, Analytical Consultant, Inc.)

12:30–1:30 p.m. | LUNCH BREAK

1:30–2:40 p.m. | The Microbiome and Metabolome

Moderator: Hye-Sook Kim, Ph.D. (NCCIH)
Cheryl Rosenfeld, D.V.M., Ph.D. (University of Missouri)
Varykina Thackray, Ph.D. (University of California, San Diego)
Jordan Bisanz, Ph.D. (Penn State University)
Diana Roopchand, Ph.D. (Rutgers University)

2:40–3:20 p.m. | Supplements and Natural Products

Moderator: Sekai Chideya, M.D., M.P.H. (NCCIH)
Melissa Melough, Ph.D., R.D. (University of Delaware)

Yu Zhang, Ph.D. (Harvard University)

3:20–3:50 p.m. | Mindfulness in the Face of Toxicity: A Framework for EDC Prevention and Mitigation

Moderator: Jennifer Baumgartner, Ph.D. (NCCIH)

Eric Loucks, Ph.D. (Brown University)

3:50–4:10 p.m. | BREAK

4:10–4:45 p.m. | Community Member Perspective

Hormis Bedolla (Alianza Nacional de Campesinas)

4:45–5:30 p.m. | From Evidence to Action—Reducing Exposure and Mitigating Risks

Carmen Messerlian, M.Sc., Ph.D. (Harvard University)

5:30 p.m. | Day 1 Closing

Thad Schug, Ph.D. (NIEHS)

DAY 2: JUNE 11, 2024

9:30–9:40 a.m. | Welcome to Day 2

Emmeline Edwards, Ph.D. (NCCIH)

9:40–10:10 a.m. | Community Member Perspective

Laurene Allen, L.I.C.S.W. (Merrimack Citizens for Clean Water)

10:10–11:10 a.m. | EDCs as Drivers of Health Disparities

Moderator: JoyAnn Courtney, Ph.D. (Office of the Director [OD]/Office of Disease Prevention[ODP])

Lindsey Treviño, Ph.D. (City of Hope, Los Angeles)

Lesliam Quirós-Alcalá, Ph.D., M.Sc. (Johns Hopkins University)

Leonardo Trasande, M.D., M.P.P. (New York University)

Ami Zota, Sc.D. (Columbia University)

11:10 a.m.–noon | Resiliency Against EDC-Associated Diseases

Moderator: LaVerne Brown, Ph.D. (OD/ODS)

Mark Williams, Ph.D., COR (Defense Centers for Public Health-Aberdeen)

Lilly Marcelin, M.S. (Resilient Sisterhood Project)

Jyoti Mishra, Ph.D., M.B.A. (University of California, San Diego)

Karen Litwa, Ph.D. (East Carolina University)

Noon–1:00 p.m. | LUNCH BREAK

1:00–1:30 p.m. | Health Care Provider Perspective

Omowunmi Osinubi, M.D., M.Sc., M.B.A. (U.S. Department of Veterans Affairs)

1:30–2:45 p.m. | Community Member and Clinician Panel to Inform Research

Moderator: Wendy Weber, N.D., Ph.D., M.P.H. (NCCIH)

Viola Waghiyi (Alaska Community Action on Toxics)

Amy Tamayo, J.D. (Alianza Nacional de Campesinas)

Laurene Allen, L.I.C.S.W. (Merrimack Citizens for Clean Water)

Marya Zlatnik, M.D. (University of California, San Francisco)

Sheela Sathyanarayana, M.D., M.P.H. (University of Washington)

Omowunmi Osinubi, M.D., M.Sc., M.B.A. (U.S. Department of Veterans Affairs)

2:45–3:15 p.m. | Putting It All Together and Next Steps

Moderators: Thad Schug, Ph.D. (NIEHS) and Sekai Chideya, M.D., M.P.H. (NCCIH)

3:15 p.m. | Closing

Sekai Chideya, M.D., M.P.H. (NCCIH)

Day One: Welcome



Sekai Chideya, M.D., M.P.H.

Program Director, Clinical Research in Complementary and Integrative Health Branch
NCCIH



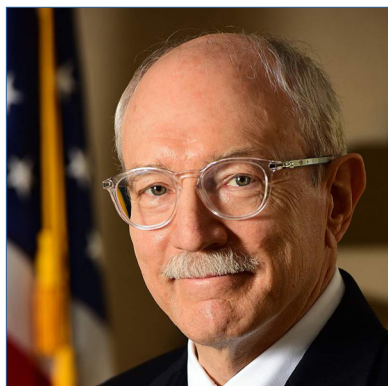
Helene M. Langevin, M.D.

Director
NCCIH



Stefan Pasiakos, Ph.D.

Director
ODS



Richard Woychik, Ph.D.

Director
NIEHS

Biographies

Setting the Stage: An Introduction to the EDC Landscape



Heather Patisaul, Ph.D.

Scientific Director of the Division of Translational Toxicology
NIEHS

Lost in Translation No Longer: Building Clinical Action From Endocrine Disruptor Science



Robert Sargis, M.D., Ph.D., University of Illinois Hospital & Health Sciences System

Dr. Sargis is a tenured associate professor in the Division of Endocrinology, Diabetes, and Metabolism at the University of Illinois Hospital & Health Sciences System (UI Health) and section chief of endocrinology at the Jesse Brown Department of Veterans Affairs Medical Center. Dr. Sargis received his bachelor's degree in chemistry from Carleton College before completing medical and doctorate degrees at Rush University. Dr. Sargis completed his internship and residency in internal medicine and a fellowship in endocrinology, diabetes, and metabolism at the University of Chicago, where he served as faculty before being recruited to UI Health. Dr. Sargis's

clinical practice is focused on caring for patients with diabetes, lipid disorders, and other metabolic diseases. In addition to his clinical and educational work, Dr. Sargis has a robust research program examining the impact of endocrine-disrupting chemicals on metabolic physiology using diverse model systems from cells to communities. His scientific goal is to advance understanding of environmental pollutants as drivers of the current metabolic disease epidemic and health disparities. Dr. Sargis's clinical and scientific commitments are aligned in using every possible resource to mitigate the devastating impact of diabetes and other metabolic disorders on vulnerable populations.

Community Member Perspective



Neil McMillan, International Association of Fire Fighters

Mr. McMillan is a fire fighter with 15 years of service at the International Association of Fire Fighters (IAFF) Local 162 in Ottawa, Ontario, Canada. Mr. McMillan has served the IAFF as the director of science and research within the Health, Safety & Medicine Division by collaborating with institutions and researchers across North America and abroad. On behalf of the IAFF, these efforts aimed 1) to better understand and reduce occupational injuries and illness related to fire fighting, and 2) to investigate emerging materials, services, and products representing the latest innovation in fire fighter safety and health. Mr. McMillan's service on National Fire Protection Association standards, as well as for the Standards Council of Canada within

International Standardization Organization Mirror Committees specific to fire fighter equipment, has supported the development of technical contributions that prioritize the health and well-being of fire fighters. Mr. McMillan has assisted members across the United States and Canada with occupational illness/injury claims and contributed to the enactment of legislation specific to fire fighter health across North America.

Lifestyle, Including Diet, Sleep, and Physical Activity



Moderator: Michele Marcus, Ph.D., M.P.H., Emory University

Dr. Marcus is professor of epidemiology, environmental health, and pediatrics at Emory University's Schools of Public Health and Medicine. She received her M.P.H. and Ph.D. from Columbia University and has more than 30 years of experience as an environmental epidemiologist. She has led an ongoing multigenerational cohort study of the health of individuals exposed to a brominated flame retardant (BFR) since 1996. It was in this population that she was able to document, for the first time, that exposure to an endocrine-disrupting chemical was associated with earlier menarche and later reproductive loss among females exposed in utero and through breastfeeding. Numerous insights into the consequences of developmental exposure to

endocrine disruptors have emerged from her research on BFRs and per- and polyfluoroalkyl substances (PFAS). She has partnered with exposed communities to pursue research that addresses their concerns. This led to an oral history project and a continuing medical education (CME)/continuing nursing education (CNE) course giving health care providers the tools to protect their patients from exposure-related adverse health outcomes. She has also served on Federal expert panels on health effects of exposure to bisphenol A, phthalates, and service in the Persian Gulf War.



Rita Strakovsky, R.D., Ph.D., Michigan State University

Dr. Strakovsky is an associate professor of human nutrition at Michigan State University. Her research focuses on various modifiable lifestyle and environmental factors that can be targeted to protect maternal and child health. Specifically, Dr. Strakovsky's work has focused on evaluating associations of endocrine-disrupting chemicals with maternal sex-steroid hormones and metabolic disruption in pregnancy. Her recent work leveraged findings from these studies to understand the implications of chemical exposures for women's health after pregnancy. As a registered dietitian with expertise in maternal nutrition, Dr. Strakovsky also works extensively to understand the

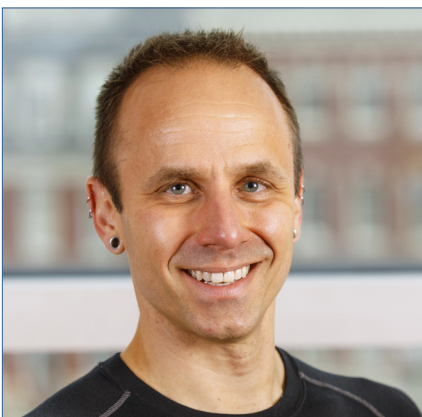
roles of maternal diet quality in pregnancy outcomes. She is especially interested in diet as a source of environmental chemicals and in investigating whether high-quality diets can mitigate environmental chemical exposures.



Karen Peterson, R.D., D.Sc., University of Michigan

Dr. Peterson is the Stanley M. Garn Collegiate Professor and inaugural chair of the Department of Nutritional Sciences and holds joint appointments as professor of environmental health sciences and of global public health at the University of Michigan School of Public Health. Her research focuses on interactions of toxicants (endocrine-disrupting chemicals, metals) and diet on growth, maturation, and cardiometabolic risk across the life course and the evaluation of interventions addressing lifestyle behaviors related to obesity and comorbidities. She was contact principal investigator for the Children's Environmental Health and Disease Prevention Center at the University

of Michigan from 2010 to 2019 and currently serves as the associate director of the National Institutes of Health-funded Michigan Nutrition and Obesity Research Center.



Joseph Braun, M.S.P.H., Ph.D., R.N., Brown University

Dr. Braun is the interim chair of the Department of Epidemiology and director of the Center for Children's Environmental Health at Brown University. He previously practiced as a public health nurse in two schools in Milwaukee, Wisconsin. As an environmental epidemiologist, he studies the health effects and modifiable sources of endocrine-disrupting chemicals (EDCs) in susceptible populations like pregnant women and children. His work estimates the impacts of EDC mixtures on childhood obesity, cardiometabolic disorders, and neurodevelopment. Dr. Braun uses metabolomics and DNA methylation to understand biological pathways underlying the health effects of

chemical exposures. He is conducting intervention studies to identify novel ways to reduce exposure to environmental chemicals in humans. Dr. Braun's presentation will focus on per- and polyfluoroalkyl substances (PFAS), a class of persistent anthropogenic compounds that are almost universally detected in all humans. PFAS are suspected obesogens and metabolic disruptors. Exposure to PFAS during sensitive periods of development may increase the risk of later-life disease, including type 2 diabetes, obesity, and cardiovascular disease. This talk will provide an overview of the sources and health effects

of PFAS exposure in humans, potential molecular mechanisms underlying these associations, and interventions to reduce or prevent human PFAS exposure and related health effects.



Michael Petriello, Ph.D., Wayne State University

Dr. Petriello is an assistant professor in the Department of Pharmacology at Wayne State University (WSU) and the National Institute of Environmental Health Sciences in Detroit, Michigan. Dr. Petriello is a molecular toxicologist who studies how the interplay between environmental pollutants and nutrition influences health. His work centers on metabolic disorders across the lifespan with a focus on lipid metabolism and coronary artery disease. In addition to studying how proinflammatory diets can exacerbate the toxicity of environmental pollutants, Dr. Petriello has a longstanding interest in identifying lifestyle-based intervention strategies. At WSU, Dr. Petriello is also the co-director of the Research Experience and Training Coordination Core

of the newly funded Superfund Research Center, which focuses on airborne pollution and preterm birth risk. He received his doctorate in toxicology from the University of Kentucky in 2015. Dr. Petriello will summarize a recent lifestyle intervention designed to address multiple cardiovascular disease risk factors and delivered using principles that supported cultural sensitivity and self-care, and promoted behavior change. Consisting of 12 biweekly group sessions with specific focus topics, the intervention decreased circulating cholesterol and per- and polyfluoroalkyl substances levels in participants at high risk for cardiometabolic disease.



Detlef Birkholz, M.Sc., Ph.D., P.Chem., D.A. Birkholz, Analytical Consultant, Inc.

Dr. Birkholz is president of D.A. Birkholz, Analytical Consultant, Inc. Previously, he was director of research and toxicology with Enviro-Test Laboratories and Australian Laboratory Services in Edmonton, Alberta, Canada. He is currently an adjunct professor with the Faculty of Pharmacy at the University of Alberta. Dr. Birkholz has more than 40 years of practical experience in analytical chemistry, research, environmental and human toxicology, and business. He developed and managed human biomonitoring services in response to requests from individuals, clinicians, and government health services. He has

provided forensic services as requested by the U.S. Centers for Disease Control and Prevention (CDC) to assist in explaining unusual fatalities in the United States and abroad. He visited the CDC and consulted with senior staff to adopt their procedures where possible. This presentation deals with published case studies performed by a clinician, Dr. Stephen Genuis. Dr. Birkholz will briefly review the bioaccumulation of some endocrine-disrupting chemicals and explain/discuss research findings on the human excretion of such chemicals by measuring blood, urine, and sweat levels of these compounds. He will address the excretion of metals, phthalates, bisphenol A, flame retardants, polychlorinated biphenyls, chlorinated pesticides, and perfluorochemicals.

The Microbiome and Metabolome



Moderator: Hye-Sook Kim, Ph.D.

Program Director, Basic and Mechanistic Research in Complementary and Integrative Health Branch, Division of Extramural Research
NCCIH



Cheryl Rosenfeld, D.V.M., Ph.D., University of Missouri

Dr. Rosenfeld is a professor in the College of Veterinary Medicine at the University of Missouri (MU). Dr. Rosenfeld earned her B.S. and D.V.M. degrees with high honors from the University of Illinois Urbana-Champaign, and she earned her Ph.D. from MU with an emphasis on endocrinology and reproductive biology. Dr. Rosenfeld serves as an emergency veterinarian on weekends and holidays at clinics in Illinois. Her main research examines how developmental exposure to endocrine-disrupting chemicals (EDC), including bisphenol A (BPA), genistein (a phytoestrogen), and ethinyl estradiol (estrogen routinely used in birth control products) leads to long-term effects on the gut microbiome which, in turn, might increase the risk for neurobehavioral

disorders, including autism spectrum disorder. With a combined 100 trillion cells and over 22 million gene products, including those that replicate host neurotransmitters, gut microbiota can dramatically shape brain development. By gaining insight into the inner workings of the gut microbiota–brain axis, Dr. Rosenfeld seeks to provide mechanistic insight and expansion of new early diagnostic and treatment avenues for neurobehavioral disorders originating from EDC-induced gut dysbiosis, such as prebiotic, probiotic, and/or post-biotic supplementation.



Varykina Thackray, Ph.D., University of California, San Diego

Dr. Thackray is a professor in the Department of Obstetrics, Gynecology and Reproductive Sciences at the University of California (UC), San Diego. She is the associate director of the UC San Diego Center for Obstetrics and Gynecology Research Innovation (CORI) and associate director of the San Diego Institutional Research and Academic Career Development Award (IRACDA) program. Dr. Thackray received her doctorate degree from the University of Colorado Health Sciences Center and post-doctoral training at the UC San Diego. She has a comprehensive background in hormonal signal transduction in reproductive tissues. Her groundbreaking work

on the role of the gut microbiome in polycystic ovary syndrome (PCOS) demonstrated that changes in gut microbiota and metabolites are associated with hyperandrogenism and that manipulation of the gut microbiome may provide an opportunity to develop novel therapeutics for PCOS. Dr. Thackray

has incorporated findings from studying the role of the gut microbiome in sex differences and PCOS to highlight how EDCs may influence the gut microbiome and explore how manipulation of the gut microbiome may mitigate EDC effects.



Jordan Bisanz, Ph.D., Penn State University

Dr. Bisanz is an assistant professor of biochemistry and molecular biology at Penn State University and the One Health Microbiome Center. The Bisanz lab combines multi-omics analyses, gnotobiotic animal models, and wet lab experimentation to understand how gut microbes affect the fate of orally consumed xenobiotics, including both pharmaceuticals and environmental toxicants. With a dual focus on both generating mechanistic knowledge and leveraging it for translational applications, the Bisanz lab is active in the development of microbiota-targeted interventions, including genetically engineered probiotics and synthetic fecal microbiota transplants. In

this presentation, Dr. Bisanz will discuss current knowledge of microbial interactions with endocrine-disrupting metals and per- and polyfluoroalkyl substances (PFAS) and how this knowledge may be leveraged for practical interventions. Taking lessons from previous human studies of probiotic supplementation in at-risk populations, he will describe efforts for selective depletion of endocrine-disrupting metals through genetically engineered probiotics.



Diana Roopchand, Ph.D., Rutgers University

Dr. Roopchand is an associate professor in the Department of Food Science at Rutgers University, and her laboratory is housed at the New Jersey Institute for Food, Nutrition, and Health. Dr. Roopchand's research team investigates how various food components (e.g., dietary polyphenols, lipids) and natural product compounds (e.g., cannabidiol) may interact with the gut microbiota and intestinal epithelium to promote health and resilience against cardiometabolic disease. The lab investigates the effects of food components and natural products using various preclinical murine models (i.e., diet-induced obesity, type 2 diabetes, female menopause), cell culture models, gut bacteria, and

in silico modeling tools with the goal of translating laboratory findings to human intervention studies. Dr. Roopchand received her doctorate from the McGill Department of Biochemistry in Montreal, Canada. She completed a National Institutes of Health/National Center for Complementary and Integrative Health-funded Postdoctoral Fellowship with the Botanicals and Dietary Supplements for Metabolic Syndrome Research Center at Rutgers University, in partnership with Pennington Biomedical Research Center and Louisiana State University. In addition to academic training, Dr. Roopchand gained experience in the pharmaceutical and dietary supplement industries to acquire a broad understanding of the diverse approaches available for addressing health maintenance and disease prevention.

Supplements and Natural Products

Moderator: Sekai Chideya, M.D., M.P.H., NCCIH ([see page 7](#))



Melissa Melough, Ph.D., R.D., University of Delaware

Dr. Melough is an assistant professor of nutrition science specializing in nutritional and environmental epidemiology at the University of Delaware. Dr. Melough's research examines the interplay of nutritional and environmental factors impacting human health with a focus on dietary strategies to promote health and mitigate adverse effects of environmental contaminants. Her current studies also explore the roles of endocrine-disrupting chemicals in the development of obesity and cardiometabolic disease and the influence of maternal nutrition on childhood health outcomes. Dr. Melough is a co-investigator on the Environmental influences on Child Health Outcomes (ECHO) Mediators and Modifiers of Prenatal Environmental Exposures and Child Neurodevelopment (MEND) study, which has focused on mediators, moderators, and nutritional factors of environmental exposures on child health outcomes. Her research includes populations susceptible to nutritional deficiencies or harmful chemical exposures, such as those in critical developmental stages and marginalized communities. Utilizing data from The Infant Development and Environment Study (TIDES) cohort, Dr. Melough will discuss 1) the mediating role of oxidative stress in the relationship between prenatal phthalates and childhood obesity, and 2) the potential of prenatal fish oil supplementation to mitigate obesogenic effects of prenatal phthalate exposure.



Yu Zhang, Ph.D., Harvard University

Dr. Zhang is a postdoctoral research fellow in the Department of Environmental Health at the Harvard T.H. Chan School of Public Health. She obtained her doctorate degree in environmental and reproductive epidemiology and her master's degree in biostatistics from Harvard T.H. Chan. Dr. Zhang's research has utilized cutting-edge methods to examine how environmental chemicals exposure, such as per- and polyfluoroalkyl substances, phenols, and phthalates, influence reproductive and perinatal outcomes and chemical vulnerable windows and health impacts. Further, Dr. Zhang's research has examined modifiable factors on which individuals can intervene, such as nutrition and lifestyles, to reduce the adverse health impacts of environmental chemicals exposure.

Mindfulness in the Face of Toxicity: A Framework for EDC Prevention and Mitigation



Moderator: Jennifer Baumgartner, Ph.D.

Program Director in the Clinical Research Branch, Division of Extramural Research, Basic and Mechanistic Research in Complementary and Integrative Health Branch
NCCIH



Eric Loucks, Ph.D., Brown University

Dr. Loucks is a professor, researcher, and innovator in the study of mindfulness and health. As director of the Mindfulness Center at Brown University, he teaches mindfulness-based programs and leads research to investigate the science behind mindfulness and its impact on health. He is the lead developer of the Mindfulness-Based College for Young Adults (MB-College) program and the Mindfulness-Based Blood Pressure Reduction (MB-BP) program, both of which have been evaluated in randomized controlled trials with beneficial health effects. Dr. Loucks has received numerous research grants from the National Institutes of Health to evaluate the effectiveness of mindfulness-based interventions. His book *The Mindful College Student* (New Harbinger

Publications) was released in 2022. Over the course of his career, he has held teaching positions at Harvard, McGill, and Brown Universities. His work has been widely distributed through media such as *The New York Times*, *TIME*, and the BBC, along with numerous presentations to national and state governmental bodies. Dr. Loucks's interactive talk will focus on the development of mindfulness programs to prevent or respond to endocrine-disrupting chemical exposure. A series of steps to follow for adaptations will be provided, with an opportunity to work through case examples from the audience.

Community Member Perspective



Hormis Bedolla, Alianza Nacional de Campesinas

Ms. Bedolla is the regional organizer for the State of New York at Alianza Nacional de Campesinas (Alianza), where she coordinates the Proyecto Madre Tierra (Mother Earth Project) within Alianza's Environmental Justice and Pesticides Initiative. Originally from Guerrero, Mexico, she immigrated to the United States in 2003, and has since worked as a campesina (farmworker). In Guerrero, she was part of a group of young missionaries who worked with children, youth, and women. After that experience, she began working with vulnerable communities like her own, which, despite many challenges, have demonstrated great resilience. She is currently part of 'Mujeres

Divinas,' a local women's group that helps with basic needs, from transportation to workplace safety training. Her work has given her the opportunity to hear the incredible stories of people who do not have a voice, and she is committed to sharing those stories so their voices will be heard.

Spanish:

Hormis Bedolla, Alianza Nacional de Campesinas

Srta. Bedolla es la organizadora regional del Estado de Nueva York en Alianza Nacional de Campesinas (Alianza) y una de las coordinadoras del Proyecto Madre Tierra dentro de la Iniciativa de Pesticidas y Justicia Ambiental de Alianza. Originaria de Guerrero, México, emigró a los Estados Unidos en 2003 y desde entonces ha trabajado como agricultor. En Guerrero, formó parte de un grupo de jóvenes misioneros y trabajó con niños, jóvenes y mujeres. De ahí surgió su vocación de trabajar con su comunidad, quienes al igual que ella, son los más vulnerables y han mostrado mayor resiliencia ante tantos desafíos. Actualmente forma parte de Mujeres Divinas, un grupo de mujeres locales que responde a necesidades básicas desde transporte hasta capacitación en seguridad laboral. Su trabajo le ha dado la oportunidad de conocer historias increíbles de personas que no tienen voz y su compromiso es compartir esas historias y hacer escuchar sus voces.

From Evidence to Action—Reducing Exposure and Mitigating Risks



Carmen Messerlian, M.Sc., Ph.D., Harvard University

Dr. Messerlian is a professor of environmental and reproductive epidemiology at the Harvard T.H. Chan School of Public Health. A passionate and curious scientist, innovator, and entrepreneur, her vision is to create a healthier future by improving couples' preconception fertility wellness worldwide. At Harvard, Dr. Messerlian leads an ambitious program of research and training where she investigates how the natural, built, and social environments affect male and female fertility, pregnancy, and child and adolescent health across the life course. Dr. Messerlian founded Vie—a digital therapeutic that uses evidence, big data, and artificial intelligence to personalize fertility wellness and care of couples planning and trying to conceive. Vie

solves for population-level fertility concerns across the globe by implementing a first-of-its-kind couple-

based wellness solution. Dr. Messerlian is a National Institutes of Health–funded scholar, writer, and thought leader. She has served on the Environmental Protection Agency’s Scientific Advisory Board and advocates for policies reducing exposure to harmful chemicals. She holds degrees from McGill University and the London School of Hygiene and Tropical Medicine. She completed postdoctoral training at Harvard and now holds faculty appointments in epidemiology and environmental health at Harvard T.H. Chan and in obstetrics and gynecology at Massachusetts General Hospital.

Day One Closing



Thad Schug, Ph.D.

Health Scientist Administrator in the Population Health Branch
NIEHS

Day Two: Welcome



Emmeline Edwards, Ph.D.
Director, Division of Extramural Research
NCCIH

Biographies

Community Member Perspective



Laurene Allen, L.I.C.S.W., Merrimack Citizens for Clean Water

Mrs. Allen is a community-based clinical social worker, co-founder of the Merrimack Citizens for Clean Water community advocacy group, and a founding member of the National PFAS Contamination Coalition. She started advocating for the needs of residents in Merrimack, New Hampshire, after learning in 2016 that her family and community members were impacted by industry-attributed polyfluoroalkyl substances (PFAS) contamination of drinking water. In addition to community engagement, education, and advocacy efforts on a local, state, and Federal level, Mrs. Allen has focused on raising awareness of community health impacts believed to be associated with both past and ongoing PFAS exposure. Together with citizen advocates from

across the nation, she has also led efforts to attain a holistic and integrated Federal response to PFAS exposure that ensures health science drives environmental policy and community support measures. Mrs. Allen strongly believes that PFAS-impacted community members are valid exposure outcome observers, as illustrated by facilitating a community-designed and -led health survey. The resulting co-authored paper, entitled “Making the invisible visible: results of a community-led health survey following PFAS contamination of drinking water in Merrimack, New Hampshire,” has been published in the journal *Environmental Health*, and information about it can be found on the Citizens for Clean Water website (cleanwaternh.org).

EDCs as Drivers of Health Disparities



Moderator: JoyAnn Courtney, Ph.D.
Health Scientist Administrator
OD/ODP



Lindsey Treviño, Ph.D., City of Hope, Los Angeles

Dr. Treviño is an assistant professor in the Division of Health Equities and Department of Population Sciences. She received her doctorate degree in reproductive physiology from Cornell University and continued her postgraduate training at Baylor College of Medicine in Houston. She received additional postdoctoral training at the Institute of Biosciences and Technology of Texas A&M University, where she examined the molecular basis of how developmental exposure to the endocrine disruptor bisphenol A (BPA) reprograms the liver epigenome to alter liver metabolism in adulthood in a rat model. She continued this line of research as an instructor at Baylor College of Medicine before joining City of Hope. Dr. Treviño's research is focused on understanding

the molecular basis by which exposure to endocrine-disrupting chemicals disrupts the epigenetic machinery to promote the development of metabolic diseases with known disparities, such as cancer, obesity, and diabetes. Understanding the molecular mechanisms underlying epigenetic reprogramming may provide potential prevention strategies (for outreach and policy changes) and/or therapeutic targets for precision medicine approaches in high-risk populations. Dr. Treviño has been the recipient of numerous honors and awards, including selection as a Future Leaders Advancing Research in Endocrinology fellow, Keystone Symposia fellow, and National Institutes of Health future research leader, and receipt of the Young Investigator Award sponsored by the Women in Endocrinology.



Lesliam Quirós-Alcalá, Ph.D., M.Sc., Johns Hopkins University

Dr. Quirós-Alcalá received her B.Sc. degree in bioengineering and her M.Sc. degree in safety engineering and industrial hygiene from Texas A&M University. She received her Ph.D. from the University of California, Berkeley, in environmental health sciences with a focus on exposure science and environmental epidemiology. She is an assistant professor at Johns Hopkins University in the Department of Environmental Health and Engineering. Dr. Quirós-Alcalá conducts translational exposure science research to better understand exposure-response relationships using an environmental justice framework. Her research focuses on exposures to endocrine disruptors and their

health risks on vulnerable, low-income, and marginalized populations historically underrepresented and understudied in research, including occupational populations, pregnant women and women of reproductive age, and children. Her research aims to inform the development of public health policies and practices and interventions to address environmental health disparities. In 2019, Dr. Quirós-Alcalá was recognized with the International Society of Exposure Science Joan Daisy Young Exposure Scientist Award, and in 2023, she was appointed to serve in the Health Effects Institute Environmental Justice Program Advisory Council. Dr. Quirós-Alcalá serves as commissioner in the Maryland Governor's Commission on Environmental Justice and Sustainability Communities (CEJSC) and on the Board of Scientific Counselors for the National Institute for Occupational Safety and Health (NIOSH).



Leonardo Trasande, M.D., M.P.P., New York University

Dr. Trasande is the Jim G. Hendrick, M.D. Professor of Pediatrics, director of the Division of Environmental Pediatrics, and vice chair for research in the Department of Pediatrics at New York University's (NYU) Grossman School of Medicine. He also serves on the faculty of NYU's Robert F. Wagner Graduate School of Public Service. Dr. Trasande is an internationally renowned leader in children's environmental health. His research focuses on identifying the role of environmental exposures in childhood obesity and cardiovascular risks and documenting the economic costs for policymakers of failing to prevent diseases of environmental origin in children proactively.



Ami Zota, Sc.D., Columbia University

Dr. Zota is an associate professor in the Department of Environmental Health Sciences at Columbia University Mailman School of Public Health. She is a population health scientist with expertise in environmental health, environmental justice, and maternal and reproductive health. Her research focuses on understanding social and structural determinants of environmental exposures and their consequent impacts on women's health outcomes across the life course. Her scholarship and research translation efforts have helped to establish the disproportionate burden of toxic chemical exposures from beauty and personal care products among women of color as an environmental justice and health equity concern. Dr. Zota is the

founding director of Agents of Change in Environmental Justice, a program that seeks to foster more diverse, equitable, and inclusive leaders in environmental and climate justice. She is also the codirector of the Community Engagement Core of the National Institute of Environmental Health Sciences (NIEHS)-funded NIEHS Center for Environmental Health and Justice in Northern Manhattan at Columbia Mailman School of Public Health.

Resiliency Against EDC-Associated Diseases



Moderator: LaVerne Brown, Ph.D.

Director, Resilience and Health Studies Program
OD/ODS



Mark Williams, Ph.D., COR, Defense Centers for Public Health-Aberdeen

Dr. Williams is a senior biologist and project manager for the Environmental Ecotoxicology Assessments Program at the Defense Centers for Public Health–Aberdeen, Toxicology Directorate, Health Effects Research Division, where he has served for more than 10 years. He is co-chair (elect) of the Applied Vehicle Technology Working Group of the North Atlantic Treaty Organization’s Science and Technology Organization. Previously, he was co-director of the National Institutes of Health Pediatric AIDS Immunology Core Laboratory at the University of California, San Diego; instructor in medicine at the Johns Hopkins University School of Medicine; assistant professor of environmental

medicine at the University of Rochester School of Medicine and Dentistry; and a biological scientist at the U.S. Environmental Protection Agency. He is editor-in-chief of *Drug and Chemical Toxicology*, an editorial advisory board member for *Toxicology Letters*, and on the peer review panel of *Military Medicine*, and has authored over 120 peer-reviewed articles, book chapters, and book titles in immunology, toxicology, and public health. He has a Ph.D. in hematological oncology and immunology from University of London Queen Mary College and degrees in biotechnology and bioengineering and molecular cell biology and immunology. His presentation will discuss generational effects of deployment-associated exposures among veterans who served in the Gulf War and other conflicts.



Lilly Marcelin, M.S., Resilient Sisterhood Project

Ms. Marcelin is a community activist and organizer who has dedicated herself to a lifelong journey around racial and social justice equity. Ms. Marcelin has worked on a broad range of issues from gender-based violence, human trafficking, health, and socioeconomic disparities to women’s reproductive health and rights. She is the founder and executive director of the Resilient Sisterhood Project (RSP), which has a mission to inform and empower women and young adults of African descent about the common diseases of the reproductive system that disproportionately affect them. Ms. Marcelin strongly prefers to work in partnership with—rather than on behalf of—Black women to address

deeply rooted systemic racism. Ms. Marcelin holds educational degrees and certificates from Wellesley College, Tufts University, and Boston University School of Management.



Jyoti Mishra, Ph.D., M.B.A., University of California, San Diego

Dr. Mishra is a cognitive neuroscientist and the founder and director of the Neural Engineering & Translation Labs (NEATLabs) at the University of California, San Diego. She is also co-director of the University of California Climate Change and Mental Health Initiative. Her lab innovates scalable and noninvasive neurotechnology solutions and conducts community-partnered mental health and well-being research. She has studied psychological resilience in the context of climate trauma that defines the mental health sequelae of extreme events driven by climate change, such as intense wildfires in California. Dr. Mishra’s team has found that strong resilient belief, mindfulness,

and exercise are protective in the context of climate trauma and associated with reduced symptoms of post-traumatic stress disorder, anxiety, and depression. They also found that strong social bonds with family and community promote resilience. Dr. Mishra is studying interventions that enhance mindfulness, especially embedded within nature, to understand how they benefit community mental health and promote resilience. Dr. Mishra's work has been widely featured in *TIME* magazine, CNN, *The Washington Post*, National Public Radio, The Hill, World Economic Forum, and *Neuroscience News*, and she has been cited by the latest Intergovernmental Panel on Climate Change (IPCC) and U.S. National Climate Assessment reports.



Karen Litwa, Ph.D., East Carolina University

Dr. Litwa is an associate professor of anatomy and cell biology at East Carolina University Brody School of Medicine. She is also a member of the East Carolina Diabetes and Obesity Institute and the North Carolina State University Center for Human Health and the Environment. Dr. Litwa received her Ph.D. from Emory University and completed postdoctoral training at the University of Virginia. As a postdoctoral fellow, she began using human brain models to unravel the complexities of the developing brain. The developing brain is particularly susceptible to disruption by chemicals and environmental factors that disturb synapse formation and contribute to the etiology of neurodevelopmental disorders, such as autism spectrum

disorders (ASD). Her current research addresses the need for preventative strategies to combat the onset of chemically induced synaptic alterations. Specifically, the Litwa lab investigates whether the phytochemical sulforaphane can prevent chemically induced oxidative stress, synaptic alterations, and corresponding changes in developing neural networks. This research—funded by the National Center for Complementary and Integrative Health and the Office of Dietary Supplements—is also elucidating transcriptional signatures associated with neuroprotection, which will provide an important foundation for developing preventative strategies to combat other ASD-associated environmental toxicants. Dr. Litwa is also the recipient of a National Science Foundation Career award that funds research and teaching activities associated with uncovering molecular mechanisms of mammalian synapse formation.

Health Care Provider Perspective



Omowunmi Osinubi, M.D., M.Sc., M.B.A., U.S. Department of Veterans Affairs

Dr. Osinubi is a board-certified occupational and environmental medicine physician and provides clinical consultations to veterans and/or their health care providers on matters relating to complex medical health conditions and exposures of concern during military service. She is director of clinical services at the War Related Illness and Injury Study Center (WRIISC) of the U.S. Department of Veterans Affairs New Jersey Healthcare System. She is part of the WRIISC team that trains clinicians on military service-related exposures at conferences across the Nation. Dr. Osinubi is a clinical professor (adjunct) at the Rutgers

University—School of Public Health and is recognized as a national subject matter expert in military occupational and environmental exposures and related health effects.

Community Member and Clinician Panel To Inform Research



Moderator: Wendy Weber, N.D., Ph.D., M.P.H.

Branch Chief, Clinical Research in Complementary and Integrative Health Branch, Division of Extramural Research
NCCIH



Viola Waghiyi, Alaska Community Action on Toxics

Ms. Waghiyi has been the environmental health and justice director of Alaska Community Action on Toxics since 2002. She is a Sivuqaq Yupik grandmother and native village of Savoonga tribal citizen. She is a nationally recognized environmental justice leader and is frequently invited to speak locally, nationally, and internationally. She was appointed by President Biden to the White House Environmental Justice Advisory Council (WHEJAC) in April 2021, to advise the chair of the Council on Environmental Quality and WHEJAC and increase the Federal Government's efforts to address environmental justice. In December 2021, she received a Rachel's Network Catalyst Award for her environmental leadership. As a leader of the Global

Indigenous Peoples Caucus, she advises United Nations international delegates on treaties concerning persistent organic pollutants. She has been a member of the National Institute of Environmental Health Sciences National Advisory Environmental Health Sciences Council. She has received an Environmental Achievement Award from the Alaska Native Tribal Health Consortium and a certificate of appreciation from the leaders of her home village, Savoonga. She coordinates environmental health research projects in Alaska and supervises a community-based participatory research project with the tribes of Sivuqaq.



Amy Tamayo, J.D., Alianza Nacional de Campesinas

Ms. Tamayo is the national policy and advocacy director of Alianza Nacional de Campesinas (Alianza). As the daughter of immigrant parents from Mexico, Ms. Tamayo grew up in rural Idaho learning from her family's experiences and challenges, which instilled in her an interest in serving her community. In her work at Alianza, Ms. Tamayo is passionate about advocating alongside women farmworkers to advance their demands relating to workers' rights, environmental justice, immigration, and ending violence against women. While at Alianza, Ms. Tamayo has focused on key issues including women's safety in the workplace, health impacts due to pesticide exposure,

and the climate crisis. Prior to joining Alianza, she was a justice catalyst legal fellow at Centro de los Derechos del Migrante, where she focused on challenging the gender discrimination that women face

during recruitment and in the workplace. As a law student at American University Washington College of Law, Ms. Tamayo worked on asylum, labor trafficking, and wage theft cases as well as policy advocacy for migrant worker health and safety in the food processing industry.

Laurene Allen, L.I.C.S.W., Merrimack Citizens for Clean Water ([see page 19](#))



Marya Zlatnik, M.D., University of California, San Francisco

Dr. Zlatnik is professor of obstetrics, gynecology, and reproductive sciences at the University of California, San Francisco (UCSF) and a maternal fetal medicine specialist with clinical expertise in complications of pregnancy and prenatal diagnosis. She has a long-standing interest in environmental toxins and climate change and their effects on pregnancy and reproduction. She is a member of UCSF's Program on Reproductive Health and the Environment (PRHE) as well as associate director of UCSF's fellowship in maternal fetal medicine. She is associate director for the Maternal Fetal Health and the Environment Program at UCSF's Western States Pediatric Environmental Health Specialty Unit. Dr. Zlatnik earned her medical degree at the University of Iowa. She completed a

residency in obstetrics and gynecology, a fellowship in maternal-fetal medicine, and a master's degree in medical science at the University of Texas Medical Branch.



Sheela Sathyanarayana, M.D., M.P.H., University of Washington

Dr. Sathyanarayana is a professor of pediatrics and adjunct professor of environmental and occupational health sciences at the University of Washington (UW) and Seattle Children's Research Institute. She conducts research focused on endocrine-disrupting chemicals in plastics, including phthalates and bisphenol A in pregnancy and childhood health outcomes. She serves as the principal investigator (PI) for The Infant Development and Environment Study, a multicenter cohort study of phthalate exposures in pregnancy and health outcomes in children. She is also PI of the Environmental influences on Child Health Outcomes (ECHO) Mediators and Modifiers of Prenatal Environmental Exposures and Child Neurodevelopment (MEND) study.

She has served as the chair for the U.S. Environmental Protection Agency's (EPA) Children's Health Protection Advisory Committee and on the National Academies of Sciences, Engineering, and Medicine's Committee on Endocrine-Related Low-Dose Toxicity. She was a member of EPA's Science Advisory Committee on Chemicals, which advises EPA on risk assessments related to the Toxic Substances Control Act. She sees patients through the Pediatric Environmental Health Specialty Units and the UW Newborn Nursery, where she was medical director for 6 years.

Omowunmi Osinubi, M.D., M.Sc., M.B.A., U.S. Department of Veterans Affairs ([see page 23](#))

Putting It All Together and Next Steps

Moderators: Thad Schug, Ph.D., NIEHS ([see page 17](#)) and Sekai Chideya, M.D., M.P.H., NCCIH ([see page 7](#))

Day Two Closing

Sekai Chideya, M.D., M.P.H., NCCIH ([see page 7](#))