



## Endocrine Disrupting Chemicals and Women's Health Symposium

The HHS Office on Women's Health conducted the virtual **Endocrine Disrupting Chemicals and Women's Health Symposium** on July 18 – 19, 2023. The symposium featured federal and non-federal stakeholders in the fields of research, prevention, and treatment focusing on the impact of endocrine disrupting chemicals on women's health and exploring actionable solutions and addressing evidence to policy and practice gaps.

## Speakers and Biographies



**Admiral Rachel L. Levine, M.D.**, serves as the 17th Assistant Secretary for Health for the U.S. Department of Health and Human Services (HHS) and the head of the U.S. Public Health Service Commissioned Corps. She fights every day to improve the health and well-being of all Americans. She's working to help our nation overcome the COVID-19 pandemic and build a stronger foundation for a healthier future - one in which every American can attain their full health potential. ADM Levine's storied career, first, as a physician in academic medicine focused on the intersection between mental and physical health, treating children, adolescents, and young adults. Then as Pennsylvania's Physician General and later as Pennsylvania's Secretary of Health, she addressed COVID-19, the opioid crisis, behavioral health and other public health challenges.



**Linda Giudice, MD, PhD**, is Distinguished Professor of Obstetrics, Gynecology and Reproductive Sciences at the University of California, San Francisco. She is a biochemist and reproductive endocrinologist specializing in endometriosis, adenomyosis, ovulatory disorders, and infertility. Her research focuses on multi-omics approaches to elucidate function and dysfunction of human endometrium in health and disease and environmental impacts on reproductive health. She has mentored >320 students, fellows, and faculty, authored >325 peer-reviewed publications, and is co-editor of 7 textbooks on women's health, endocrinology, environmental health, endometrium, and endometriosis. She has women's health, endocrinology, environmental health, endometrium, and endometriosis. She has women's health, endocrinology, environmental health, endometrium, and endometriosis. She has received numerous awards acknowledging her contributions to science, medicine, and mentoring. Dr. Giudice is Past-President of the American Society for Reproductive Medicine, Society for Reproductive Endocrinology and Infertility, World Endometriosis Society, and International Federation of Fertility Societies. She is immediate past Chair of the FIGO Committee on Climate Change and Toxic Environmental Exposures and is an elected member of the U.S. National Academy of Medicine and the U.S. National Academy of Inventors.



**Andrea Gore, PhD**, is Professor and Vacek Chair in Pharmacology at the University of Texas at Austin. Her research team is investigating fundamental mechanisms of how environmental endocrine-disrupting chemicals (EDCs) perturb the developing brain, sex differences in EDC actions, and transgenerational epigenetic effects. Dr. Gore's research has been funded continuously by the NIH, NSF, and foundations since 1992. She has published 4 books and over 190 scientific papers on her research. She was Editor-in-Chief of *Endocrinology* from 2013-2017 and was lead author of the Endocrine Society's two Scientific Statements on EDCs. Among her most notable research, teaching, and service awards are her election as Fellow of the American Association for the Advancement of Science; the University of Texas Cooperative Society's Research Excellence Award; the Endocrine Society Laureate Award for Outstanding Public Service; and the Edith Clarke Woman of Excellence Award. Dr. Gore is very active in advocacy for, mentorship of, and education of trainees. 150+ undergraduate and graduate students of diverse interests and backgrounds have conducted independent research in her laboratory at the University of Texas at Austin.



**Catherine Aubee, MS, MPA**, is the Senior Advisor for the U.S. Environmental Protection Agency's Endocrine Disruptor Screening Program (EDSP) and serves as U.S. Head of Delegation to the OECD Working Party on Pesticides. As Senior Advisor for EDSP, she leads the Agency's regulatory implementation of endocrine screening within pesticide assessment and licensing decisions. Beyond EDSP, Ms. Aubee has led the advancement of protections for human health and the environment in a variety of roles, including as Senior Scientist in EPA's Environmental Fate and Effects Division, Associate Director of the conventional pesticide chemicals Registration Division, and Acting Deputy Director of the Office of Wetlands, Oceans, and Watersheds.



**Elizabeth Boham, MD, MS, RD**, is a physician and nutritionist who practices functional medicine and is the medical director of The Ultrawellness Center in Lenox, MA. Dr. Boham completed her undergraduate degree in nutritional biochemistry at Cornell University and her master's degree in nutrition and registered dietitian at Columbia University Teacher's College. She then went on to medical school and is board certified in family medicine. Dr. Boham is a certified functional medicine practitioner who is on the faculty of the Institute for Functional Medicine and has developed a functional nutrition course that is being used to educate physicians and other health professionals worldwide. Dr. Boham has contributed to many podcasts and articles and wrote the chapter on Obesity for the 9<sup>th</sup> edition of the Rankel *Textbook of Family Medicine*. She was diagnosed with triple negative breast cancer at the age of 30 and has worked to teach other women what they can do to decrease their risk of breast cancer with her lecturing and her *Breast Wellness DVD*. Through her practice and lecturing she has helped thousands of people achieve their goals of optimum health and wellness.



**Francesco DeMayo, PhD**, (Franco) is a Senior Investigator and Chief of the Reproductive and Developmental Biology Laboratory and head of the Pregnancy and Female Reproduction Group at the National Institute for Environmental Health Sciences. Prior to arriving at the NIEHS, he was Professor of Molecular and Cellular Biology and Pediatrics and held the Cullen-Duncan-McAshan Chair at Baylor College of Medicine. He also served as the Director of the Genetically Engineered Mouse Core. Dr. DeMayo earned his Ph.D. in 1983 from Michigan State University and conducted his postdoctoral training at Baylor College of Medicine. Dr. DeMayo is an internationally recognized Reproductive Biologist. His research has pioneered the use of genetically engineered mouse models to investigate the molecular mechanisms regulating the ability of the uterus to support embryo implantation, pregnancy, and parturition. He has combined these *in vivo* studies with *in vitro* studies using primary clinical samples to be able to translate his findings to the human condition. Dr. DeMayo is currently immediate Past President of SSR and has served as co Editor in Chief of SSR's journal *Biology of Reproduction*.



**Suzanne Fenton, PhD**, (Sue) is a scientist leading the Reproductive Endocrinology group in the Mechanistic Toxicology Branch at the National Institute of Environmental Health Sciences. She previously led work in similar areas at the EPA, totaling 25 years of research on environmental factors affecting women's health hazard identification. Her laboratory has characterized chemicals or environmental factors contributing to mammary gland developmental defects and cancer susceptibility, puberty timing, pregnancy-related disease, and persistent adverse health effects in developmentally exposed rodent offspring. She has received several NIH and EPA-based awards for her research on per fluorinated chemicals and endocrine disruptors.



**Jodi A. Flaws, PhD**, is a Professor in Comparative Biosciences at the University of Illinois Urbana-Champaign (UIUC). She earned a B.S. in Biology from St. Xavier University, a M.S. in Biology from Loyola University of Chicago, and a Ph.D. in Physiology from the University of Arizona. Following completion of the Ph.D. degree, Dr. Flaws performed postdoctoral research at Johns Hopkins University and the University of Maryland. Following postdoctoral training, Dr. Flaws accepted an Assistant Professor position at the University of Maryland, where she subsequently was promoted to Associate Professor. In 2006, Dr. Flaws accepted a position as Professor of Comparative Biosciences in the College of Veterinary Medicine at UIUC. Her research program is focused on determining the mechanisms by which environmental chemicals affect the function of the ovary and female reproductive system, is funded by the National Institute of Environmental Health Sciences, and has led to the publication of over 300 peer-reviewed papers. Dr. Flaws is the recipient of the Department of Epidemiology and Preventive Medicine, University of Maryland Student Mentoring Award, the Patricia Sokolove Outstanding Mentor Award, the Dr. Gordon and Mrs. Helen Kruger Research Excellence Award, the Pfizer Animal Health Award for Research Excellence, the University Scholar Award, the Women in Toxicology Mentoring Award from the Society of Toxicology, the Society for the Study of Reproduction Trainee Mentor Award, the Society for the Study of Reproduction Research Award, and the Lifetime Scientific Achievement Award from the Reproductive and Developmental Specialty Section of the Society of Toxicology.





**Janet Hall, MD, MS**, is a Senior Investigator at the National Institutes of Health (NIH) and Clinical Director of the National Institute of Environmental Health Sciences (NIEHS). Dr. Hall completed her medical training at McMaster University Medical School in Ontario, Canada. She completed her Fellowship in Endocrinology & Metabolism at Massachusetts General Hospital where she spent much of her professional life. In addition to clinical and teaching responsibilities she maintained an active program in clinical research with consistent funding from NIH, rising to the rank of Professor of Medicine at Harvard Medical School. Dr. Hall assumed the position of Clinical Director at NIEHS in 2016 and has built a vibrant research program for NIEHS in North Carolina and the Clinical Center in Bethesda. Dr. Hall is an internationally known clinician and clinical investigator with over 200 publications as well as major chapters in the leading textbooks of medicine and reproductive endocrinology. Her research focuses on neuroendocrine and ovarian integration in control of the reproductive system and the impact of genetics and the combination of genetics and physiologic stresses on the neuroendocrine control of reproduction. Her recent work includes the effects of endocrine disrupting chemicals on human health and the effects of environmental and lifestyle exposures and gene x exposure interactions on the risk of a range of human diseases. Dr. Hall is a member of the Association of American Physicians and is Past President of the Endocrine Society and of Women in Endocrinology.



**Tamarra M. James-Todd, PhD, MPH**, is an environmental reproductive epidemiologist researching the role of consumer product chemicals on women's health across the reproductive life course. She directs the Environmental Reproductive Justice (ERJ) Lab, which seeks to investigate and improve adverse environmental exposure and reproductive health disparities. Her work particularly focuses on the importance of pregnancy as a sensitive window of consumer product chemical exposures, including hair products and other personal care products. Dr. James-Todd is the Principal Investigator of multiple NIEHS funded R01 grants, focusing on endocrine disrupting chemicals and adverse maternal cardiometabolic health outcomes during pregnancy, postpartum, and mid-life in the ERGO study and Project Viva. Dr. James-Todd serves as the Principal Investigator for the Community Engagement Core of the MEMCARE P42 Superfund Research Center. In addition, she conducts interventions to improve environmental health literacy both in the lay community, as well as among health care professionals. Dr. James-Todd is also the Deputy Director of the Harvard Chan NIEHS P30 Center, where she launched the Environmental Justice Bootcamp in collaboration with two other NIEHS-funded P30 Centers. She has been awarded for her research in women's health by receiving the Estrellita and Yousuf Karsh Visiting Professorship in Women's Health and the Alice Hamilton award. She has had the honor of serving on the EPA's Scientific Advisory Board for the Chemical Assessment Advisory Committee, as well as two National Academies of Sciences, Engineering, and Medicine's committees and the March of Dimes Environmental Justice Working Group.



**Anne Marie Jukic, PhD**, leads The Fertility and Reproductive Health Group (FRHG) and also has a secondary appointment in the Reproductive and Developmental Biology Laboratory. The FRHG focuses on factors that influence reproductive function (e.g., follicle development and menstrual cycles), conception, implantation, and pregnancy health. Given the financial and emotional burden of subfertility and pregnancy loss, this research has broad and immediate public health relevance. Dr. Jukic earned a B.S. from the University of Notre Dame, an M.S.P.H. from Emory University, and a Ph.D. in epidemiology from the University of North Carolina at Chapel Hill. Menstrual cycles are an indicator of general health and menstrual cycle disturbances may predict difficulties in conceiving a pregnancy. Moreover, women with menstrual cycle irregularities may be treated with hormonal contraception, and there are currently no alternatives for women who desire non-hormonal options. Lower levels of vitamin D have been associated with prolonged or irregular menstrual cycles, delayed ovulation, and lower pregnancy rates. Low levels of vitamin D are common in the U.S., especially among African American and Hispanic women. The inVitD Trial is currently enrolling participants ([www.invitedtrial.net](http://www.invitedtrial.net)) with the primary aim of examining how vitamin D supplementation affects reproductive hormones – the backbone of the reproductive axis. inVitD will also examine novel biological pathways for vitamin D action, including through the collection of menstrual effluent. Research in the FRHG also includes air pollution, heat, phthalates, and phenols. The FRHG aims to be responsive to novel and emerging environmental exposures.



**Michele La Merrill, PhD**, earned her Ph.D. in Toxicology from the University of North Carolina, Chapel Hill and her M.P.H. in Epidemiology while training as a postdoctoral fellow in physiology at the Mount Sinai School of Medicine. Dr. La Merrill is a Professor of Environmental Toxicology and a member of the Environmental Health Center, Comprehensive Cancer Center, and Genome Center at the University of California, Davis. She is also a shared faculty member in the Environmental Genomics and Systems Biology Division at the Lawrence Berkeley National Laboratory. She uses cellular, whole animal, and human epidemiological studies to identify physiological and molecular mechanisms of toxic exposures to humans. She is particularly focused on the relationships between developmental exposure to environmental pollution and the risk of endocrine diseases: obesity, diabetes, and breast cancer. Dr. La Merrill served on an International Agency for Research on Cancer Monograph that evaluated pesticides as potential carcinogens and is a former appointee of the California Carcinogen Identification Committee. She recently co-led an international group of experts that published a consensus statement on the key characteristics of endocrine disrupting chemicals in *Nature Reviews Endocrinology*.



**Tonya Sharmaine Lane**, is a cosmetic chemist specializing in natural hair care and the creator of CurlyChemistry.com and Curly Chemistry YouTube channel which has over 10 million views. Tonya was born in New Jersey, currently residing in North Carolina where she earned her master's degree in chemistry from North Carolina Central University. With 7 years in the personal care industry, Tonya uses her experience, knowledge, and love for haircare to teach and provide the tools needed for women and men to get results with their hair care regimens and understand cosmetic ingredients based on their hair needs so they can save time and money.



**Christine Langton, PhD**, is a postdoctoral fellow for the Women's Health Group in the Epidemiology Branch at the National Institute of Environmental Health Sciences (NIEHS) where she conducts reproductive and women's health epidemiological research within the Study of Environment, Lifestyle & Fibroids (SELF), a prospective, ultrasound-based study to identify risk factors for uterine fibroid incidence and growth. Due to her interest in the potential effects of early life exposures on future health, Dr. Langton examined the association of being fed soy-based formula during infancy with fibroid development in adulthood. Dr. Langton is also examining keloid/hypertrophic scars, oral contraceptives, and family history in the SELF cohort. Prior to NIEHS, Dr. Langton earned her Ph.D. in epidemiology and held a short-term postdoctoral position at the University of Massachusetts Amherst where she conducted epidemiological research in the Harvard Nurses' Health Study II prospective cohort and examined the association of reproductive, lifestyle, in utero, and pregnancy factors with risk of early natural menopause. Earlier in her career, Dr. Langton earned a dual MSW/MPH degree from the University of Connecticut and for many years supported the data and evaluation needs of public health intervention programs in cities throughout Connecticut, including 20 years' worth of work with the federally funded Healthy Start program, an urban health initiative designed to reduce rates of infant/maternal morbidity and mortality. Dr. Langton also worked as a Research Associate at Connecticut Children's Medical Center where she contributed to various research initiatives including a pediatric inflammatory bowel disease research registry and community-based participatory research in childhood asthma.



**Christine Papagni, MA**, is a Supervising Environmental Scientist with the Safer Consumer Products (SCP) Program at the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). She has over 20 years of research experience and expertise in toxicology, chemistry, environmental science, public health, and environmental policy and regulations. As a leader for SCP's chemical and product evaluation team, Christine oversees the research of many of SCP's staff. Christine's interest in product safety began in childhood, as her mom taught her to read product ingredient labels to avoid certain chemicals due to allergies. She has a master's degree in environmental Toxicology from the University of California, Riverside and a bachelor's degree in environmental Toxicology from the University of California, Davis.



**Natasha Mesinkovska, MD, PhD**, is a prolific writer, speaker and researcher. She is a Mayo Clinic and Cleveland Clinic trained dermatologist and dermatopathologist who currently serves as the Vice Chair, Clinical Research, Department of Dermatology, University of California, Irvine, CA. She runs a busy clinical research unit, and is dedicated to alopecia, aging, and inflammatory disorders research. She is the Director for Integrative Dermatology at the University of California Irvine, S. Samueli Integrative Health Institute advancing evidence-based research in that area. As a faculty member of the University of California Beckman Laser institute, she is involved in developing non-invasive imaging modalities for skin and hair conditions. Natasha is an exceptional educator and mentor, a recipient of many awards and grants, recognizing her educational, clinical and research performance. She served as a Chief Scientific Officer for the National Alopecia Areata Foundation (2015-2022) a role essential in developing clinical trials that lead to approval of novel therapies. She is on the current NAAF scientific advisory board and the Board of Directors for the American Hair Research Society.



**Carmen Messerlian, PhD**, is an Assistant Professor of Environmental Reproductive, Perinatal, and Pediatric Epidemiology at Harvard T.H. Chan School of Public Health. The effect of environmental factors on human health, specifically reproductive health, has always fascinated her as a research scientist. Her specialty lies in reproductive, perinatal, and pediatric epidemiology; infertility; assisted reproduction; and causal methods with perinatal application. A deep curiosity about and passion for helping people with their fertility and pregnancy journeys and improving children's health fuels her daily work. In addition to her work at Harvard, Dr. Messerlian also works with leading scientists on translational research on the underlying biological pathways that may cause infertility and adverse pregnancy and child health outcomes. She aims to inform clinical practice, translate science into policy action, and implement prevention strategies to improve the health of parents and their children.



**Carmen Williams, MD, PhD**, is a Senior Investigator in the Reproductive & Developmental Biology Laboratory at the National Institute for Environmental Health Sciences. She trained and practiced clinically as an Ob/Gyn and Reproductive Endocrinology & Infertility physician scientist at the University of Pennsylvania. She then switched her career path away from the clinic to ask basic science questions about the mechanisms underlying the establishment of pregnancy. Her lab focuses on how developmental estrogenic chemical exposures impact female reproductive health.





**Tucker A. Patterson, PhD**, was selected as Center Director at the FDA's National Center for Toxicological Research (NCTR) in March 2023 after serving as the Acting Director since March 2022. Dr. Patterson previously served as the Deputy Director for Research in the Office of the Center Director/Office of Research, a position held since December 2020. Prior to this appointment, he served two years as the Associate Director for Science & Policy and over seven years as the Associate Director and Health Science Program Manager in Regulatory Compliance & Risk Management at NCTR. Dr. Patterson earned a B.S. in Chemistry from the University of Arkansas at Fayetteville and a Ph.D. in Pharmacology from the University of South Carolina. He completed a two-year postdoctoral fellowship with the Center for the Neurobiology of Aging at the University of Florida and continued his postdoctoral training at NCTR through a postgraduate research appointment with the Oak Ridge Institute for Science and Education and as a staff fellow. Dr. Patterson worked for three years as a toxicologist for the State of Arkansas at the Livestock and Poultry Commission prior to returning to NCTR in 2001 where he worked in the Division of Neurotoxicology as a senior scientist until 2010. Dr. Patterson has been involved in neuroscience and neurotoxicology research for more than thirty years and has authored or co-authored over 100 peer-reviewed scientific articles and book chapters.



**Sharyle Patton** is director of the Commonweal Biomonitoring Resource Center, where she has been employed for 20 years. Her program, working with such entities as Mt. Sinai School of Medicine, the Environmental Working Group, California Department of Public Environmental Health Investigations Branch, International Association of Fire Fighters, and the NGO network, Coming Clean Collaborative, has pioneered the implementation of biomonitoring projects initiated by community-based organizations and the communication of the data from such projects to project participants. Sharyle is a member of the Experts Group of the California Environmental Health Tracking Program, the Global PFAS Science Panel (Switzerland), and a co-founder of the International Pollution Elimination Network, a 600-member global network that focusses on health and environment issues within the UN treaty system.



**Rita Strakovsky, PhD, RD**, is an Assistant Professor of Human Nutrition at Michigan State University. She is also an active member of the Institute of Integrative Toxicology and the Reproductive and Developmental Sciences Program. Dr. Strakovsky earned her Ph.D. in Nutritional Sciences and Registered Dietitian credentials from the University of Illinois, Urbana-Champaign. She remained at the University of Illinois to conduct postdoctoral research as part of a T32 program in Endocrine, Developmental & Reproductive Toxicology followed by a K99/R00 award focusing on perinatal and environmental epidemiology within the context of the I-KIDS cohort. Dr. Strakovsky's research focuses on various modifiable lifestyle and environmental factors that can be targeted to protect maternal and child health. Her work with I-KIDS initially focused on evaluating associations of endocrine disrupting chemicals or maternal metabolic status with maternal sex-steroid hormones in pregnancy. Dr. Strakovsky's recent work leverages findings from these studies to understand the implications of chemical exposures for 9 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.



**Leonardo Trasande, MD, MPP**, 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 policy makers of failing to prevent diseases of environmental origin in children proactively. He also holds appointments in the Wagner School of Public Service and NYU's College of Global Public Health. He is perhaps best known for a series of studies published in *Lancet Diabetes and Endocrinology* and the *Journal of Clinical Endocrinology and Metabolism* that document disease costs due to endocrine disrupting chemicals in the U.S. and Europe of \$340 billion and €163 billion annually, respectively. Dr. Trasande leads one of 35 centers across the country as part of the National Institute of Health's Environmental Influences on Child Health Outcomes program. He has served as a member of the American Academy of Pediatrics' Executive Committee of the Council for Environmental Health; the Science and Technical Advisory Committee for the World Trade Center Health Program; the National Children's Study Methodological Review Panel of the National Academy of Sciences; the United Nations Environment Program Steering Committee on a Global Outlook for Chemicals; and the Board of Scientific Counselors for the National Center for Environmental Health at the Centers for Disease Control and Prevention. After receiving his bachelor, medical, and public policy degrees from Harvard, he completed the Boston Combined Residency in Pediatrics and a legislative fellowship in the Office of Senator Hillary Rodham Clinton.



**Lindsey Treviño, PhD**, is an Assistant Professor in the Division of Health Equities and Department of Population Sciences at City of Hope. One of the research projects in her laboratory focuses on understanding the molecular mechanisms underlying the link between exposure to parabens, a class of endocrine disrupting chemicals (EDCs) typically found in personal care products and development/progression of breast cancer in Black women. She is particularly interested in the role of EDC-mediated reprogramming in this context. She previously demonstrated that developmental exposure to the EDC bisphenol A accelerated epigenomic aging in the developing liver. This finding highlights the importance of reducing adverse EDC exposures and preventing epigenomic reprogramming and its effects in target tissues. 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 selected as a Future Leaders Advancing Research in Endocrinology (FLARE) Fellow, and a Keystone Symposia Fellow. She previously served on the Committee on Diversity and Inclusion (CODI), on the Governance Task Force, on the Research Affairs Core Committee (RACC), and on the Board of Directors of the Endocrine Society. Dr. Treviño currently serves on the Science Advisory Panel of Breast Cancer Prevention Partners.