



Photo courtesy of Living Water International

# Global Environmental Health Day

June 29, 2016

*Exploring Global Environmental Health  
at NIEHS, in the Triangle,  
and Around the World*

# 1<sup>st</sup> Annual NIEHS Global Environmental Health Day

National Institute of Environmental Health Sciences  
Research Triangle Park, NC  
June 29, 2016

## AGENDA

- 9:00a.m.**      **Welcome and Opening Remarks** – Linda Birnbaum, Director, National Institute of Environmental Health Sciences and National Toxicology Program
- 9:15a.m.**      **Keynote: *The Role of Diplomacy in Global Environmental Health*** – Mitchell Wolfe, Deputy Assistant Secretary for Global Affairs, Department of Health and Human Services
- 9:45a.m.**      **Perspectives from Global Environmental Health Leaders in the Research Triangle**  
Moderator – Linda Birnbaum, National Institute of Environmental Health Sciences

***Found in Translation: Global Environmental Health at NIEHS*** – John Balbus, National Institute of Environmental Health Sciences

NIEHS has a long history of supporting environmental health research and information transfer around the world. And with reaffirmation of our commitment to global environmental health leadership in our current strategic plan, NIEHS is poised for another 50 years of partnership and accomplishment. This talk will highlight current activities in GEH research, research translation and training across the Institute, closing with an overview of the WHO-NIEHS Collaborating Centre for Environmental Health Sciences.

***Global Environmental Health Research and Education at Duke: An Interdisciplinary Approach*** – Randall Kramer, Duke University

The Duke Global Health Institute (DGHI) was founded in 2006 to serve as a university-wide nexus to coordinate, support and implement Duke's interdisciplinary research, education, policy and service activities related to global health. DGHI has developed a dynamic research agenda that reflects the changing global burden of disease and catalyzes interdisciplinary and innovative work across Duke University, Duke University Medical Center, and DGHI's network of international partners. DGHI faculty lead more than 200 global health research projects in more than 40 countries in a wide variety of thematic areas. One of DGHI's Signature Research Initiatives is global environmental health. Its global environmental health faculty conduct cutting edge research on air quality, water quality and climate change issues in Asia, Africa and Latin America. In addition, several of the institute's educational programs include a global environmental health component, including an undergraduate liberal arts degree in global health and a Master's of Science degree. One example of this is DGHI's educational activity related to the One Health, a field which emphasizes the interconnections between human health, animal health and environmental quality. DGHI faculty are leading triangle-wide courses and a D43 training grant to advance One Health knowledge for learners at various levels. This example, among others, is part of DGHI's commitment to contributing to the field of environmental health and the prevention and treatment of health problems in populations around the world.

***Global Health Begins at Home*** – James Herrington, University of North Carolina at Chapel Hill

The UNC Gillings School of Global Public Health is preparing the next generation of public health researchers and practitioners to build on the “good news” successes and “bad news” challenges of global public health and address the public health challenges that confront our globalized world.

***Inevitable Paradigm Shift for Sustainable Environmental and Human Health*** – John Bang, North Carolina Central University

Deteriorating environmental conditions secondary to climate change and man-made pollution are believed to induce serious damages to human health and ecosystems. The current crisis is a natural product of many years of near-sighted human activities that have been practiced with an assumption that nature would continue taking care of itself as it had done before. When environmental concerns began to show up, efforts mainly focused on new technology development as a solution. The current pace of environmental deterioration that are causing health impacts around the globe make it inevitable for us to reassess and make a paradigm shift, not only in the way how policies are made and implemented at local government levels but also in the way individuals should conduct daily activities with related cost assessment in environmental health. Behavioral changes at individual levels that stress conservation, as well as long term planning for technical advancement at each government level need to be implemented and practiced for sustainability.

***Global Environmental Health in Research Triangle Park*** – Claire Neal, Triangle Global Health Consortium

What makes North Carolina unique in the world of global health? The Triangle Global Health Consortium is a non-profit member organization representing institutions and individuals from the pharmaceutical and biotechnology industry, the international health development NGO community, and academia. These organizations are uniting to make North Carolina an international center for research, training, education, advocacy, and business dedicated to improving the health of the world's communities.

**10:45a.m. Break**

**11:00a.m. TED Talk: *How We Can Make the World a Better Place*** – Michael Green, Social Progress Expert

**11:15 a.m. Sustainable Development**

Moderator – Trisha Castranio, National Institute of Environmental Health Sciences

***Sustainable Development Goals*** – Laura Hoemeke, IntraHealth International

The Sustainable Development Goals are achievable, but only if we embrace the complexity and interconnectedness of the goals. For more than 35 years in 100 countries, IntraHealth International has partnered with governments, civil society, the private sector, and other stakeholders to improve the performance of health workers and strengthen the systems in which they work through investments in the global health workforce and health systems.

***Climate Change*** – John Balbus, National Institute of Environmental Health Sciences

Climate Change affects human health in many different ways, and people and communities in Low and Middle Income Countries are frequently the most exposed and most vulnerable to

health impacts. In addition to supporting research on the health implications of global climate change, NIEHS is working to raise awareness domestically and internationally and to build the capacity of vulnerable countries to assess and enhance resilience to the health impacts of climate change.

***Electronic Waste (e-waste)*** – Michelle Heacock, National Institute of Environmental Health Sciences

As the demand for electronics increases, the amount of electronic waste (e-waste) steadily accumulates. Recycling of valuable materials contained in e-waste, such as copper and gold, has become a source of income in some developing or emerging industrial nations, where informal recycling practices expose people, including susceptible populations such as pregnant women and children, to the hazardous substances found in e-waste. Through the NIEHS WHO Collaborating Center e-waste focus area, a network of researchers, medical practitioners and communication experts are working together to tackle this growing problem by increasing awareness and devising strategies to reduce exposures to e-waste.

***Economics of SDGs*** – Subhrendu Pattanayak, Duke University

The post 2015 development agenda reflects a necessary course correction from the MDGs to SDGs because it was impossible to achieve development goals without simultaneously protecting health, environmental, social, and energy outcomes. While this has resulted in a bewildering array of goals and targets, we will necessarily focus on multiple outcomes of SDG policies in this post 2015 era, which will require economic analysis for at least three purposes. First, economic methods such as non-market valuation provide one way to compare outcomes across multiple potentially disparate domains such as environment, health, poverty, livelihoods etc. Second, such comparisons will require stacking benefit streams against direct and opportunity costs and force us to confront tradeoffs in any SDG related course corrections. Third, by highlighting who bears the costs and who experience the benefits, economic analysis provides a window into the political economy of policy action – i.e., how can we tweak incentives and nudge institutions to deliver SDGs.

**1:15p.m.**

**Children's Environmental Health**

Moderator – Gwen Collman, National Institute of Environmental Health Sciences

***Global Children's Environmental Health Network*** – William Suk, National Institute of Environmental Health Sciences

A significant global burden of disease is attributed to environmental risk factors. Over 40 percent of this burden falls on children under the age of five. Unsafe water and indoor smoke from solid fuels are two of the top ten risk factors contributing to the global burden of disease in the poorest regions of the globe. Thus, a global strategic network focusing on children can harness global expertise to understand the relationship between environmental exposure and ill health, and reduce disease burden. The Global Children's Environmental Health Network, made up of WHO Collaborating Centres and coordinated by NIEHS, is enhancing collaborations and communications among environmental health investigators; integrating investigator-initiated research; establishing and maintaining partnerships; and developing educational materials to protect our most vulnerable population: children. For these efforts to be successful, the knowledge they generate must be translated for the target audiences in meaningful and culturally appropriate ways.

***The Role of NIEHS in Supporting Children's Environmental Health*** – Kimberly Gray, National Institute of Environmental Health Sciences

The mission of the NIEHS is to discover how the environment affects people in order to promote healthier lives. In the area of children's environmental health, NIEHS supports a number of local and international research projects that are examining the effects of air pollution, metals, pesticides, and other environmental contaminants on children's health. NIEHS' extensive research program in children's environmental health has increased our understanding of the unique vulnerability of developing children to harmful environmental exposures and helped to guide the development of protective measures for children in the United States and around the world.

***DOHaD: Fostering Global Disease Prevention*** – Jerry Heindel, National Institute of Environmental Health Sciences

The developmental origin of health and disease (DOHaD) hypothesis states that there are sensitive windows, including pregnancy and early childhood, where environmental stressors can affect cell and tissue programming leading to increases susceptibility to disease. The NIEHS WHO Collaborating Center DOHaD focus group is working to increase the global recognition of the DOHaD hypothesis in general and specifically the role that exposure to environmental chemicals play in developmental programming and disease susceptibility. Expanding the science, infrastructure, and education concerning the DOHaD hypothesis across the globe offers the opportunity to prevent non communicable diseases by reducing exposures during these sensitive windows.

***Community-Based Water, Sanitation and Hygiene: Opportunities for Scale-Up and Replication*** – Andrew Herrera, Curamericas Global

Since 1983, Curamericas Global has implemented community-based primary health care programs around the world to decrease mortality among women and children and change behavior. Nutrition continues to be a challenge for programs and is related to low-birth weight and delayed development, especially in the first 1,000 days of a child's life, from conception to age two. Water, sanitation and hygiene programs have been a primary way for Curamericas Global to improve environmental health among our beneficiaries in rural and often forgotten communities. Through community programs to identify needs, prioritize and address those needs and with regular monitoring and evaluation, communities build their own infrastructure and create education tools to ensure appropriate use of key behaviors to reduce mortality and increase nutritional status of the most vulnerable populations. In addition to a look at what Curamericas Global is doing, how can we replicate and scale-up proven community-based programs?

2:15p.m.

**Selected Global Environmental Health Issues**

Moderator – Kimberly Thigpen Tart, National Institute of Environmental Health Sciences

***Indoor Air Pollution***– Claudia Thompson, National Institute of Environmental Health Sciences

The use of traditional stoves affects the health of an estimated 3 billion people worldwide. This is a major global environmental health issue. As NIEHS has stated in its Strategic Plan, environmental exposures of widespread public health significance occur throughout the world – many disproportionately affect not only the disadvantaged in our country but also the developing world. Therefore, populations around the world will continue to be a focus of NIEHS

research. NIEHS and the NIH have invested over the years in better determining the health impacts of household air pollution associated with cookstove use as well as understanding the factors that affects adoption and sustainable use of improved fuels and/or cookstoves. This presentation will highlight the research that has been conducted and will discuss future directions and opportunities.

***The Pregnancy and Child Epigenetics Consortium*** – Stephanie London, National Institute of Environmental Health Sciences

The founding of this international consortium to investigate the influence of in utero exposures on newborn epigenetics, assessed by a genome wide methylation platform, as well as the association between newborn and child methylation on childhood health and disease will be discussed.

***Global Implementation of Systematic Review Methodology in Environmental Health*** –Abee Boyles, National Toxicology Program

The National Toxicology Program has been a leader in a worldwide effort to adapt and apply systematic review methods to address environmental health questions. Ongoing collaborations include the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Working Group, the Navigation Guide working group, the Integrated Risk Information System of the U.S. Environmental Protection Agency (EPA-IRIS), the European Food Safety Authority (EFSA), the Evidence Based Toxicology Collaboration (EBTC), and the World Health Organization Chemical Risk Assessment Network. This talk will highlight aspects of these joint efforts to improve harmonization of applying systematic review to environmental health assessment methods.

***From Malaria to Mercury: Translating Scientific Research to Policy*** – William Pan, Duke University

Affecting policy to improve human and environmental health is a challenging and sometimes frustrating process. As scientists, the questions we ask do not always align with political ideology and objectives. For over a decade, our research team has cultivated relationships with Peruvian government and non-government institutions at local, state and national levels to more rapidly disseminate research findings and affect policy. In this presentation, challenges are discussed from our experience in Peru and emerging opportunities with support from the recently established Duke Peru Priority Research Location.

***One Health in North Carolina and Beyond*** – Cheryl Stroud, NC One Health Collaborative

In recent days Ebola and Zika viruses have given the world important One Health lessons. Ecologists have repeatedly pointed out that human impact on the environment (via deforestation, development, etc.) is bringing people and wildlife into ever increasing contact. Additionally, the world must discover how to feed the projected 9 billion people that will soon populate its face without causing further global destruction. Addressing these issues requires conjoined, sustained, simultaneous, collaborative trans-professional attention to many arenas such as: soil and plant health, antimicrobial resistance, zoonotic diseases, secure social, economic and political systems, advances in comparative and translational research and education, to name a few arenas included under the One Health umbrella. One Health is the collaborative effort of multiple health science professions, – working locally, nationally, and globally – to attain optimal health for people, domestic animals, wildlife, plants, and our

environment. How does One Health differ from Public Health and Global Health? We are all working toward the same end; but One Health deliberately tries to assure that 'all' necessary players from human, animal and environmental health professions, are at the table as we address our many wicked global problems. No one profession, no one country or region can have 'all' the answers. We need to find ways out of our silos to work together. One Health thinking really is a "ray of hope" for the future, our only way forward. This brief presentation will describe our critical need for a One Health approach and share an update on One Health efforts in North Carolina, across the U.S. and beyond.

**3:15p.m. Break**

**3:30p.m. Global Environmental Health Training**

Moderator – Darryl Zeldin, National Institute of Environmental Health Sciences

***Global Environmental and Occupational Health (GEOHealth)*** – Mike Humble, National Institute of Environmental Health Sciences

The GEOHealth program supports the development of institutions in the Low- or Middle-Income Countries (LMICs) that will serve as regional hubs for collaborative research and training around high priority local, national, and/or regional environmental and occupational health concerns. The GEOHealth Program is supported by the NIEHS, the Fogarty International Center (FIC), the National Cancer Institute (NCI), the National Institute for Occupational Safety and Health (NIOSH/CDC), and the Canadian International Development Research Centre (IDRC).

***International Fellows at NIEHS: Training Opportunities and Career Outcomes*** – Tammy Collins, National Institute of Environmental Health Sciences

The NIEHS intramural training program reaches individuals across the globe, with nearly half of all NIEHS trainees coming from abroad. In response to national calls for data on the career outcomes of postdoctoral fellows, we have undertaken an initiative to track NIEHS alumni career outcomes from fellows leaving within the past 15 years. Here we highlight the career outcomes of our visiting fellow alumni. We also describe key collaborative postdoctoral programs between NIH and international partners.

***Air Pollution and Health: A Case Study of Capacity Building in Accra, Ghana*** – Sara Terry, U.S. Environmental Protection Agency

Urban environments are where people and pollution come together. Some of the most challenging, and rapidly growing, urban areas are in developing countries where data, resources, and capacity are limited, but health impacts of air pollution are significant and also growing. USEPA is developing analytical tools to assist developing countries to assess air quality and implement air quality management programs, without making significant and lengthy investments in expensive ambient air quality monitoring equipment. An important aspect of this work is to help decision makers understand the health and climate impacts of available emission reduction scenarios. An overview of the tools being developed and their application in an ongoing project in Accra, Ghana illustrate this work.

4:00p.m.

### **Insights from Global Fellows**

Moderator – Darryl Zeldin, National Institute of Environmental Health Sciences

***Environmental Health in Nepal*** – Srishti Shrestha, National Institute of Environmental Health Sciences

Nepal is one of the least developed countries in the world, with about one-third of the population living below the national poverty line. Both communicable and non-communicable diseases are significant public health problems in Nepal. Poor sanitation, unsafe drinking water, poor nutrition, indoor air pollution, vector borne diseases such as malaria, and ground water arsenic contamination are the recognized environmental health threats. Furthermore, environmental issues such as ambient air pollution and toxic effluents are also emerging, mainly due to rapid urbanization and changing population dynamics. Although Nepal has made significant progress in the certain areas including maternal and child health and some infectious diseases, there seems to be a huge knowledge gap regarding health impacts associated with these environmental risk factors overall. The overall research effort seems to be minimal.

***Is Environmental Pollution Inevitable in Developing Countries?*** – Salik Hussain, National Institute of Environmental Health Sciences

A continued push for rapid development and industrialization, coupled with the fears of reduction in economic growth, are among major hurdles in developing sustainable environmental protection strategies in underdeveloped countries. Environmental deterioration acts as both a cause and a consequence of poverty. While it seems obvious that reducing the use of natural resources will result in a reduction in economic growth, the cost associated with the neglect of natural resources is often overlooked. A damaged resource base is the major cause of poverty and results in further overuse of the limited resources, resulting in a downward spiral of impoverishment and environmental degradation. Significant advantages, including an increase in the pace of economic growth, can be gained by addressing environmental issues in underdeveloped countries.

***Inspired: Why I Got Involved in Public Health*** – Osborn Kwena, Duke-UNC Rotary World Peace Fellow

Approximately 1.8 billion people lack access to safe drinking-water and more than 800,000 deaths occur from unsafe water, sanitation, and hygiene. Most of the burden of diarrheal disease is thought to be preventable with improvements in water quality and sanitation. In addition, management of water resources to enhance sustainability is becoming ever more crucial. However, these improvements are not always happening where diarrheal disease burden is greatest and where improvements are most needed, such as in developing countries like Kenya, my home country. This is as a result of constant contamination of ground water, surface water sources and the environment that exposes the population to diseases and other contaminants that impact their health.

At this event, I will share my personal experience working on water & sanitation projects, and lessons learned with a goal of improving the participant's understanding of public health practices related to water in developing countries.

***Education as a Powerful Tool in Improving Global Environmental Health*** – Teminioluwa Ajayi, Duke School of Medicine, Triangle Global Health Consortium Emerging Leader Award Winner 2016

Temini Ajayi will discuss some of his experiences with the Nigerian and American education systems, focusing on the how practical learning here in the United States translated into a deep interest in solving problems through global health and medicine. He will also talk about the importance of early exposure to environmental health careers, and how such exposure can better position young professionals to tackle pressing environmental health issues. He will also speak briefly on some of the work he is doing in the educational space in Nigeria, and how bidirectional flow of information, and partnerships with US institutions and organizations have the potential to build local capacity and strengthen local programs.

**4:50p.m.**      **Closing Remarks** – Linda Birnbaum, National Institute of Environmental Health Sciences

This event is being webcast, recorded and archived for future viewing.

## Bio Sketches

### **Teminioluwa Ajayi , Duke School of Medicine and Triangle Global Health Consortium Emerging Leader Award Winner 2016**

Teminioluwa Ajayi is a leader in global health, innovation, and youth development. He is dedicated to addressing pressing global health problems by advocating for innovative solutions, collaborative efforts and academic research. He draws on his medical education and public health background to develop multi-faceted strategies that target systemic problems. Growing up in Nigeria, he experienced first-hand the challenges of poor access to health care and quality education. He has made it his life's goal to improve the health status of, and quality of care available to, his communities and others. Believing that service should be a core pillar of any society, he has galvanized a number of initiatives targeting systemic public health issues and educational challenges in the United States and in Africa. Mr. Ajayi has earned a Bachelor of Science degree in Molecular and Cellular Biology, as well as a Master of Public Health degree, from Texas A&M University. He is currently a second year medical student at Duke University School of Medicine. Temini has been recognized as a National Collegiate Scholar, has received the Charles Phillips Health Policy and Management Award, the Duke Med Engage Global Health Award, NIEHS research fellowship award, and more recently the Triangle Emerging Leader in Global Health Award.

### **John M. Balbus, National Institute of Environmental Health Sciences**

John M. Balbus, M.D., M.P.H., is the Senior Advisor for Public Health to the Director of the National Institute of Environmental Health Sciences, where he directs the NIEHS-WHO Collaborating Centre for Environmental Health Sciences. He serves as HHS principal to the U.S. Global Change Research Program and also co-chairs working groups on Climate Change and Human Health for the US Global Change Research Program and for the National Institutes of Health. Balbus has served as a lead author on health for the past two US National Climate Assessments and a Review Editor for the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). He is co-author of the HHS guide document "Primary Protection: Enhancing Health Care Resilience for a Changing Climate." Before joining NIEHS, Dr. Balbus was Chief Health Scientist for the non-governmental organization Environmental Defense Fund for seven years. He was also on the faculty of The George Washington University Schools of Medicine and Public Health and Health Services, where he was founding Director of the Center for Risk Science and Public Health and Acting Chairman of the Department of Environmental and Occupational Health. Dr. Balbus received his A.B. degree in Biochemistry from Harvard University, his M.D. from the University of Pennsylvania, and his M.P.H. from the Johns Hopkins School of Public Health.

### **John Bang, North Carolina Central University**

John Bang majored in Biochemistry (B.S.) at the University of Illinois at Urbana-Champaign. After graduation, John received his medical school training (M.D.) at the University of Illinois, College of Medicine and additional one year of tropical medicine at Central America Health Science University. He later completed a graduate study (Ph.D.) in Environmental Sciences and Engineering at University of Texas at El Paso with a focus on nanoparticle behavior. His research areas have been in nanomaterial characterization, development of environmental remediation methods using nanomaterial, delineation of pathophysiological mechanisms after exposure to engineered nanomaterial and Persistent Organic Pollutants, and sustainability. He has built a multi-national research network with other scientists and engineers who share the same interest in global environmental and human health.

## **Linda Birnbaum, Director, National Institute of Environmental Health Sciences and National Toxicology Program**

Linda S. Birnbaum, Ph.D., became the Director of the National Institute of Environmental Health Sciences (NIEHS), one of the National Institutes of Health (NIH), and the [National Toxicology Program](#) (NTP) on [January 18, 2009](#). In these roles Birnbaum oversees federal funding for biomedical research to discover how the environment influences human health and disease. Several [advisory boards and councils](#) provide Birnbaum and NIEHS/ NTP staff with input to accomplish this large task. Birnbaum is the first toxicologist and the first woman to lead the NIEHS/NTP. She has spent most of her career as a federal scientist. Birnbaum has received numerous awards and recognitions, including being [elected to the Institute of Medicine](#) of the National Academies, in October 2010, one of the highest honors in the fields of medicine and health. Birnbaum's own research and many of her [publications](#) focus on the pharmacokinetic behavior of environmental chemicals; mechanisms of actions of toxicants, including endocrine disruption; and linking of real-world exposures to health effects. Birnbaum also finds time to mentor the next generation of environmental health scientists. For example, she serves as 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 Program at Duke University. A native of New Jersey, Dr. Birnbaum received her M.S. and Ph.D. in microbiology from the University of Illinois at Urbana-Champaign.

## **Abee Boyles, National Toxicology Program**

Abee L. Boyles, Ph.D. is a health scientist with the Office of Health Assessment and Translation in the National Toxicology Program at NIEHS. Dr. Boyles is part of the team that developed the OHAT Approach to systematic review and evidence integration for literature-based environmental health science assessments. She is currently leading the systematic review of Mountaintop Removal Mining: Impacts on Health in the Surrounding Community and the Synthetic Turf/Recycled Tire Crumb Rubber Research Program. Boyles received her Ph.D. in Genetics and Genomics from Duke University after completing a B.S. in Zoology at North Carolina State University. Dr. Boyles joined the Epidemiology Branch at NIEHS for her postdoctoral training focused on the genetic and environmental factors associated with facial clefts and folate metabolism under Dr. Allen Wilcox.

## **Moderator – Trisha Castranio, National Institute of Environmental Health Sciences**

Trisha Castranio is a program analyst in the Global Environmental Health program at the National Institute of Environmental Health Sciences. She also works in the Health and Safety Branch as a Global Reporting Initiative certified sustainability analyst writing the institute's biannual sustainability report and offering guidance on policy changes, performing outreach and communication on initiatives that can help make the NIEHS a more sustainable workplace. Her previous work includes fifteen years as a bench scientist in environmental health research. She serves on numerous committees including the Global Environmental Health working group, the NIH Sustainability Management Team, The NIH Green Teams and Sustainable Laboratories working group as well as the NIEHS Environmental Awareness Advisory Committee. Ms. Castranio received her B.S. in Biochemistry and B.A. in Chemistry from North Carolina State University.

### **Tammy Collins, National Institute of Environmental Health Sciences**

Tammy Collins is the Director of the Office of Fellows' Career Development at the National Institute of Environmental Health Sciences (NIEHS). In this role, she develops and organizes professional career development and scientific training opportunities for the postdoctoral community. She also provides individual CV/resume consultations and facilitates networking opportunities with area professionals. Aside from these responsibilities, she performs a range of additional duties including those in conflict resolution, policy implementation, strategic planning, and event planning. Her central mission is to assist others in finding their career path and to ensure that they are equipped with the knowledge and skills to become successful and independent. Prior to transitioning into her current role, Tammy received her B.S. in Chemistry from Appalachian State University, and her Ph.D. in Biochemistry from Duke University. After a brief postdoc at Duke University, she joined NIEHS as a postdoc in 2009 where she developed her passion for working in the scientific career development field.

### **Moderator – Gwen Collman, National Institute of Environmental Health Sciences**

Gwen Collman is director of the NIEHS Division of Extramural Research and Training where she leads approximately 80 professional staff in areas of scientific program administration, peer review, and the management and administration of about 1,500 active grants each year. She directs scientific activities across the field of environmental health sciences including basic sciences (i.e., DNA repair, epigenetics, environmental genomics), organ-specific toxicology (i.e., reproductive, neurotoxicology, respiratory), public health related programs (i.e., environmental epidemiology, environmental public health) including Global Environmental Health, and training and career development. She also oversees the implementation of the Superfund Research Program and the Worker Education and Training Program. Prior to her current role, Collman served in program development and management, beginning in 1992 as a member, then as Chief of the Susceptibility and Population Health Branch. During this time, she directed research on the role of genetic and environmental factors on the development of human disease, from animal models of genetic susceptibility to population studies focusing on etiology and intervention. She was responsible for building the NIEHS grant portfolio in environmental and molecular epidemiology, and developed several complex multidisciplinary research programs. These include the NIEHS Breast Cancer and the Environment Research Centers Program, the NIEHS/EPA Centers for Children's Environmental Health and Disease Prevention, and the Genes, Environment and Health Initiative. Also, under her guidance, a team created a vision for the Partnerships for Environmental Public Health programs for the next decade.

### **Kimberly Gray, National Institute of Environmental Health Sciences**

Kimberly A. Gray received both her Ph.D. in Epidemiology from the University of Pittsburgh, PA and post-doctoral training at NIEHS. In her training, she examined the effects of exposures during pregnancy on children's neurodevelopment. She is a Program Director for the Population Health Branch at NIEHS and directs the NIEHS and EPA Children's Environmental Health Centers. Dr. Gray was a member of the National Children's Study and now serves on the Environmental Influences on Children's Health Outcomes (ECHO) working group. ECHO will leverage existing cohorts to address how pre-, peri-, and post-natal environmental exposures impact childhood development. She serves as a scientific focus lead on NIEHS World Health Organization Collaborative Center (WHO CC) with a primary responsibility of networking the existing WHO CC with special interest in Children's Environmental Health, and key focus lead on cook stove replacement and Developing Origin of Health and Disease. She is the scientific advisor to the Fogarty NIH GEOHealth programs in Bangladesh and Ethiopia. The GeoHealth Hub program supports the development of institutions in the Low- or Middle-Income Countries that will serve as regional hubs for collaborative research, data management, training and curriculum and outreach material development around high priority local, national, and regional environmental and occupational health threats.

### **Michelle Heacock, National Institute of Environmental Health Sciences**

Michelle Heacock, received her doctorate from Texas A&M University for her work on the interplay between DNA repair proteins and telomeres, followed by a postdoc at the NIEHS that concentrated on understanding the causes and outcomes of cellular toxicity in response to DNA damaging agents. She is currently a Program Officer at the NIEHS for the Superfund Research Program (SRP), a grant program with a multidisciplinary approach to understanding the toxicity and risks of hazardous substances on human and environmental health. For the SRP, she also helps to coordinate the research translation and community engagement cores. In her role in the NIEHS - WHO Collaborating Center for Environmental Health Sciences, she is the co-lead for e-waste focus area.

### **Jerry Heindel, National Institute of Environmental Health Sciences**

Jerrold J. Heindel has a PhD in Biochemistry from the University of Michigan and worked in the area of reproductive biology and toxicology while on the faculty at the University of Texas Medical School at Houston and the University of Mississippi before coming to NIEHS to head their Reproductive and Developmental Toxicology group. Over twenty years ago he moved to the Division of Extramural Research and Training at NIEHS where he is a scientific program administrator and responsible developing and administering the NIEHS grants program in endocrine disruptors, developmental basis of diseases and obesity and diabetes.

### **James Herrington, University of North Carolina at Chapel Hill**

Dr. Herrington has over 30 years of experience in global public health. In December 2014, he was appointed Executive Director of the Gillings Global Gateway™ and Professor of the Practice in the Department of Health Behavior, Gillings School of Global Public Health, at the University of North Carolina at Chapel Hill. Prior to UNC, Dr. Herrington served for 10 years at the National Institutes of Health as the Director, Division of International Relations, Fogarty International Center, where he developed new and strategic partnerships between US scientists and researchers abroad to advance translational research and training in the biomedical and behavioral sciences. Previous to NIH, Dr. Herrington worked for the Centers for Disease Control and Prevention, the International Planned Parenthood Federation, and the University of North Carolina at Chapel Hill School of Medicine. Dr. Herrington's career has focused primarily on Africa and the Caribbean, with longterm assignments in Côte d'Ivoire, Haiti, Nigeria, and Sénégal. Dr. Herrington holds a PhD in environmental health and epidemiology from Colorado State University, a MPH from the University of North Carolina at Chapel Hill, and a BS from Texas A&M University. His research interests include behavioral epidemiology, risk perceptions and health behavior, vector-borne and immunizable infectious diseases, malaria, falsified and substandard medicines, and the communication of science and technology. Dr. Herrington serves as an anonymous reviewer for the American Journal of Tropical Medicine and Hygiene, American Journal of Preventive Medicine, American Journal of Public Health, Health Behavior and Education, PLoS Medicine, PLoS ONE, and Science, and has authored several articles in peer-reviewed journals. His secondary languages include French and Wolof. Dr. Herrington is from Oklahoma and a member of the Chickasaw Nation.

### **Andrew Herrera, Curamericas Global**

Before joining Curamericas Global in 2009, Mr. Herrera served with the City of Raleigh Parks and Recreation for four years and spent a year studying in Ecuador. In 2004, Mr. Herrera was a State Department Ambassador to Jiaonan, China through the American Field Service. He has a B.A. in Hispanic Studies and Religious Studies from East Carolina University and is currently pursuing his MPH at the UNC-Chapel Hill Gillings School of Global Public Health. As Executive Director of Curamericas Global since December 2013, Mr. Herrera has been responsible for leading strategic initiatives, development of the Board of Directors and the day-to-day operations of an international Nongovernmental Organization.

### **Laura Hoemeke, IntraHealth International**

Laura Hoemeke, MPH, DrPH, is IntraHealth International's Director of Communication and Advocacy. She has nearly 25 years of experience in global health, including long-term country assignments in the Central African Republic, Benin, Senegal, and Rwanda, and short-term assignments throughout East, West, and Central Africa. She has expertise and experience in integrated health service delivery and health systems strengthening, as well as maternal and child health, reproductive health, and prevention and control of infectious diseases. In early 2003, Hoemeke joined IntraHealth International as Regional Director for West and Central Africa, based in Senegal. From 2005 through early 2010, Hoemeke was based in Rwanda as the director of IntraHealth's USAID-funded Twubakane Decentralization and Health Program. In 2010, she joined IntraHealth's headquarters leadership team, overseeing communications and global and country-level advocacy initiatives. She earned a doctorate in health policy and management from UNC Gillings School of Global Public Health, an MPH from Johns Hopkins University, and a BS in journalism from Northwestern University.

### **Mike Humble, National Institute of Environmental Health Sciences**

Michael Humble, Ph.D., received his doctorate in toxicology from the University of North Carolina at Chapel Hill performing his dissertation research in the intramural laboratories at NIEHS on a transgenic mouse model for skin cancer. Dr. Humble is a Program Administrator in the Genes, Environment and Health Branch, Division of Extramural Research and Training, NIEHS. Dr. Humble has programmatic responsibility and oversight of the Extramural Fellowship program, several international training grants, the R25 research education programs including the "Summer Research Experience" program (formerly known as STEER) and the new "Undergraduate Research Education Program to Enhance Diversity in the Environmental Health Sciences (UP)" program, and the research portfolios in skin disease, immunotoxicology/autoimmune disease, and circulatory/blood disease.

### **Salik Hussain, National Institute of Environmental Health Sciences**

Salik Hussain is a Research Fellow in the Clinical Research Branch of the NIEHS, where he studies the health impacts of various nanomaterials. He was born in Toba Tek Singh, Pakistan in 1981. He received D.V.M. and M.Sc. Hons. in Toxicological Pathology from the University of Agriculture, Faisalabad, Pakistan. During his masters he studied the impacts of pesticide and mycotoxin exposures. In 2004, he joined the Department of Pathology, University of Agriculture Faisalabad, as Research/Teaching Associate and later joined the University of Veterinary and Animal Sciences, Lahore, as a lecturer. In 2006, he moved to France, where he earned his MS and PhD degrees in Cell Biology and Toxicology at the University Paris Diderot, Paris, France. He also worked in the Department of Public Health in the KU Leuven during his doctoral studies. He earned European Doctorate from Paris and then joined Nano Health Initiative of the NIEHS in 2011

### **Randall Kramer, Duke University**

Randall Kramer is professor of environmental economics and global health in the Nicholas School of the Environment, and Deputy Director of the Duke Global Health Institute. Before coming to Duke in 1988, he was on the faculty at Virginia Polytechnic Institute and State University. He has held visiting positions at IUCN--The World Conservation Union, the Economic Growth Center at Yale University, and the Indonesian Ministry of Forestry. He has served as a consultant to the World Bank, World Health Organization and other international organizations. He was named Duke University's Scholar Teacher of the Year in 2004. Kramer's research is focused on the economics of ecosystem services and on global environmental health. He is currently leading an interdisciplinary team using decision analysis and implementation science to evaluate the health, social and environmental impacts of alternative malaria control strategies in East Africa.

### **Osborn Kwena, Duke-UNC Rotary World Peace Fellow**

Osborn Kwena is a Duke-UNC Rotary World Peace Fellow from Kenya and a recent graduate from Gillings School of Public Health at the University of North Carolina-Chapel Hill. He has over five years of experience in implementing public health research projects both as a field practitioner and project manager. Prior to joining UNC, he worked with Innovations for Poverty Action in Kenya, a non-profit organization focused on finding solutions to the problem of poverty using rigorous research to evaluate programs. He specifically worked under the WaSH-Benefits project funded by The Bill and Melinda Gates Foundation where he coordinated a large-scale evaluation of water, sanitation, hygiene and nutrition interventions on child health. Osborn has also worked at The Water Institute at UNC and The Earth Institute at Columbia University. He holds a M.P.H. in Environmental Science and Engineering.

### **Stephanie London, National Institute of Environmental Health Sciences**

Stephanie London, M.D., Dr.P.H. is the Principal Investigator and Deputy Chief, Epidemiology Branch NIEHS. She holds a joint appointment in the NIEHS Immunity, Inflammation and Disease Laboratory. She earned her AB, MD and DrPH degrees from Harvard University and completed her residency in Internal Medicine at Massachusetts General Hospital. She was Assistant Professor in the Department of Preventive Medicine at the University of Southern California School of Medicine before coming to NIEHS in 1995. Dr. London's work focuses on the role of environmental and genomic factors in the etiology of respiratory health and diseases across the life course. Dr. London has initiated and collaborated in national and international epidemiological studies on the impact of environmental exposures, nutrition, genetics and epigenetics on respiratory health. Since 2008, her work has focused on genome-wide association approaches. She has extensive experience in genome wide association studies of pulmonary function, asthma and chronic obstructive pulmonary disease through her participation in international consortia and leadership of the CHARGE pulmonary group. Turning her attention to epigenetics, she published the first study to use the Illumina 450K methylation platform to examine any *in utero* exposure and identified numerous loci differentially in response to maternal smoking in pregnancy. To begin to follow-up these findings and extend them to other exposures and outcomes, she formed a consortium of birth and childhood cohorts with genome-wide methylation data known as PACE (Pregnancy and Child Epigenetics).

### **Claire Neal, Triangle Global Health Consortium**

Claire Neal, DrPH is the executive director of the Triangle Global Health Consortium, a non-profit member organization representing some of the best and brightest in global health. Members include major pharmaceutical companies such as GlaxoSmithKline; leading global health development organizations including founding members RTI International, FHI360 and IntraHealth; and major

academic institutions, such as Duke University, NC State University, and UNC Chapel Hill. Dr. Neal has over 15 years of experience in the development and delivery of innovative health programs. For over a decade, she worked at the **LIVESTRONG** Foundation improving the lives of people with cancer. Most recently Dr. Neal was the Vice President of Global Strategy where she provided the leadership and vision for **LIVESTRONG**'s global work. She received her Doctor of Public Health (DrPH) at the UNC Gillings School of Global Public Health and her MPH from Tulane's School of Public Health and Tropical Medicine. Dr. Neal also studied Primary Health Care Management at the ASEAN Institute of Health and Development in Thailand. She has a BA in Psychosocial Aspects of Health and Health Care Systems from Duke University. Claire served in the Peace Corps in Mali. She was selected as an Independent Sector American Express NGen Fellow in 2011.

### **William Pan, Duke University**

William Pan, Dr.PH., M.S., M.P.H., is Assistant Professor of Global Environmental Health and head of the Peru Priority Partnership Location for Duke University. He is an expert in human-environment dynamics influencing human health with over 15 years of experience working in low- and middle-income countries, primarily in tropical environments of Latin America. He received his doctorate in biostatistics at UNC-Chapel Hill and was awarded the 2012 James E. Grizzle Distinguished Alumni Award for significant contributions to public health and biostatistics. His work contributes to better understanding how environmental factors influence human health and to help identify leverage points where human-environment sustainability and resilience are maximized. He currently leads four ongoing studies in the Amazon addressing several inter-related themes: (1) The LUCIA study, supported by the Inter-American Institute for Global Change Research, to evaluate the impact of road construction on human and environmental vulnerability in the Peruvian region of Madre de Dios; (2) The Amarakaeri Cohort Study, supported by Hunt Oil, LLC, to measure the impact of resource extraction (gas and gold) in a communal reserve on adult and child health—this project focuses on major environmental factors affecting chronic disease, infectious disease, and toxicology, and was a key component in Peru's recent State of Emergency declaration for Madre de Dios due to high mercury exposure; (3) The Malaria Early Warning System (MEWS), supported by NASA to continue the development of a MEWS in the Amazon that will develop deterministic and stochastic models that combine climate, land cover, soil moisture, vector density, and human population distribution to predict malaria risk in high resolution spatial and temporal zones; and (4) the El Nino study, supported by NIEHS to evaluate how significant climate impacts like El Nino influences mercury exposure in the Amazon and whether these events increase risk for long-term developmental deficits in child development.

### **Subhrendu Pattanayak, Duke University**

Subhrendu K. Pattanayak is a Professor of Public Policy and Environmental Economics at Duke University. He studies the causes and consequences of human behaviors related to the natural environment to help design and evaluate policy interventions in low income tropical countries. His research is in three domains at the intersection of environment, development, health and energy: (a) forest ecosystem services, (b) environmental health (diarrhea, malaria, respiratory infections), and (c) household energy transitions. In all domains, he has focused on design of institutions and policies that are motivated by enormous inequities and a range of efficiency concerns (externalities, public goods and imperfect information and competition). Professor Pattanayak approaches these problems through systematic reviews of the literature (meta-analyses) and statistical modeling with high resolution objective data collected in the field. He then uses those data to test hypotheses salient to policy manipulation, developed both from economic frameworks that he teaches and from stakeholder discussions and direct observations in the field. He employs empirical methods that exploit quasi-experimental variation (or experiments where feasible and appropriate), captured through household, community and institutional surveys. He typically matches these survey data with meso-scale secondary

statistics and estimates econometric models to generate policy parameters. In order to fund, design, and implement this research, he has collaborated closely with multi-lateral agencies, NGOs, governments, and local academics in Brazil, Costa Rica, India, Indonesia, Mexico, Nepal, Sri Lanka and the U.S. Currently, Professor Pattanayak leads a new multi-disciplinary initiative at Duke University on household health and energy: <http://www.dukeenergyhealth.org/> and a faculty fellow of the South Asian Network of Development and Environmental Economists.

### **Srishti Shrestha – National Institute of Environmental Health Sciences**

Srishti Shrestha is a visiting postdoctoral fellow in the Epidemiology Branch of the National Institute of Environmental Health Sciences. She is from Kathmandu, Nepal. She received her Ph.D. in epidemiology from the University at Albany, State University of New York. Her research interests include effects of environmental chemicals on neurological health outcomes and endocrine functions in aging populations. As a postdoctoral fellow, she studies environmental risk factors of Parkinson's Disease.

### **Cheryl Stroud, NC One Health Commission**

Cheryl Stroud has both veterinary and basic research training, holding both a D.V.M. and a Ph.D. in basic endocrine physiology. With professional experiences in Industry, Academic Research and Teaching, Private Veterinary Practice and One Health Leadership, she feels that everything in her life has prepared and led her to her current role as Executive Director of the One Health Commission. She cut her One Health baby teeth in the 80s while working at Penn State in an NIH National Institute of Aging Fellowship in the Department of Anthropology to study reproductive cycles in populations of women from around the world. In 2010 she was instrumental in creation of the North Carolina One Health Collaborative chairing its Steering Committee for over three year. She was selected to be AVMA representative to the One Health Commission in 2011, became vice Chair of the Board in 2012 and was asked to become Executive Director in 2013. Her primary focus is educating, locally, nationally, and internationally, about One Health and One Health issues. Cheryl believes strongly in the value of interdisciplinary collaborations. She seeks, via the One Health Commission, to "Connect" international One Health stakeholders into strategic networks that will work *collaboratively* across professions to "Create" action teams that "Educate" about One Health and One Health Issues. In her 'spare' time she enjoys hiking, horseback riding, reading and sewing. She has a patient and supportive husband of 31 years and a grown son and daughter who still don't 'get' their crazy mom. Her forte is bringing people together.

### **William Suk, National Institute of Environmental Health Sciences**

William Suk, Ph.D., M.P.H., is director of both the Center for Risk & Integrated Sciences (CRIS), and the [Superfund Research Program](#), as well as the chief of the Hazardous Substances Research Branch in the NIEHS Division of Extramural Research and Training. His affiliation with a number of organizations and committees include: Roundtable on Environmental Health Sciences, Research, and Medicine, Institute of Medicine, National Academy of Sciences; International Advisory Board of the Chulabhorn Research Institute, Bangkok, Thailand; and World Health Organization Consultation on Scientific Principles and Methodologies for Assessing Health Risks in Children Associated with Chemical Exposures. He sits on a member of a number of trans-NIH committees. He sits on the editorial boards of a number of international journals, including *Environmental Health, Toxicology and Environmental Chemistry, International Journal of Occupational Medicine and Environmental Health*, and the *Central European Journal of Public Health*. Suk has been a National Science Foundation fellow. The NIH has honored him for his many efforts, and he has received the HHS Secretary's Award for Distinguished Service. He is a recipient of the Roy E. Albert Memorial Award for Translational Research in Environmental Health from the University of Cincinnati; the Child Health Advocacy Award from the Children's Environmental Health Network; the John P. Wyatt Lecture Award in Environmental Health

and Disease from the University of Kentucky; and the Adel F. Sarofim Award for Outstanding Professional Achievement in Championing Research on the Origin, Fate and Health Effects of Combustion Emissions. He is a Fellow of the Collegium Ramazzini. Suk received his Ph.D. in microbiology from the George Washington University; his Masters in Public Health in health policy from the School of Public Health, University of North Carolina at Chapel Hill.

#### **Sara Terry, Environmental Protection Agency**

With an undergraduate degree in Systematics and Ecology from the University of Kansas and Master of Public Administration from NC State, Sara Terry has completed nearly 28 years of Federal Service. Sara served in the Peace Corps before joining EPA in 1991. She has been involved in various programs over the years, gaining exposure to nearly all aspects of the EPA air program's technical and policy portfolio. She currently serves as a member of the Office of Air Quality Planning and Standards Policy and Communication Staff, as Congressional liaison. Sara also retains a number of responsibilities in the OAQPS international program, including leading the Africa Megacity Partnership in Accra, Ghana.

#### **Moderator – Kimberly Thigpen Tart, National Institute of Environmental Health Sciences**

Kimberly Thigpen Tart, J.D., M.P.H., is a program analyst in the Office of Policy, Planning, and Evaluation at the National Institute of Environmental Health Sciences. She previously served as News Editor of the institute's journal, *Environmental Health Perspectives*, for 15 years. Her current focus areas include issues of climate change and human health, global environmental health, children's environmental health, prevention research, and research policy and translation. She represents the NIEHS to the NIH Prevention Research Coordinating Committee, the Research Triangle Environmental Health Collaborative, and the Triangle Global Health Consortium. She is a member of the U.S. Global Change Research Program's Climate Change and Human Health Working Group, and co-chairs the Subcommittee on Climate Change of the President's Task Force on Environmental Health Risks and Safety Risks to Children. She serves on the Steering Committee of the NIEHS-WHO Environmental Health Collaborating Centre and the working group of the NIEHS GEH Program. She received her B.A. with Honors (journalism) and her J.D. (law) from the University of North Carolina at Chapel Hill, and holds a Masters in Public Health Leadership from the Gillings School of Global Public Health at UNC with a focus on global health and policy.

#### **Claudia Thompson, National Institute of Environmental Health Sciences**

Claudia Thompson, Ph.D., is the branch chief for the Susceptibility and Population Health Branch (SPHB). She joined the Division of Extramural Research and Training in 1994 as a program administrator for the Superfund Research Program (SRP) and was also responsible for building the grant portfolio in the scientific areas of biomarker (exposure, effect, and susceptibility) development, metabolic toxicology, chemical mixtures research and molecular mechanisms of metal toxicity and carcinogenicity. In addition to her branch chief responsibilities, Thompson is a senior advisor to the SRP and is providing leadership to the Deepwater Horizon Disaster Academic-Community Research Consortium. Thompson received her B.S. in biology from Bradley University in Peoria, Ill., and her Ph.D. in biochemistry and nutrition from the University of North Carolina at Chapel Hill. Prior to joining DERT in 1994, Claudia was a research scientist for 10 years in the Laboratory of Biochemical Risk Analysis in the Division of Intramural Research at NIEHS.

### **Mitchell Wolfe, Deputy Assistant Secretary for Global Affairs, Health and Human Services**

Mitchell I. Wolfe, MD, MPH, is currently Deputy Assistant Secretary at the Office of Global Health, HHS. He was with CDC from 1998-2014, most recently as the Director of the U.S. Centers for Disease Control and Prevention (CDC) Thailand Office, as well as the Director of the CDC Global AIDS Program Thailand/Asia Regional Program, which provided technical assistance to several countries in the region and in Africa. From 2005-2009, he was the Director of the CDC Vietnam Office, located in Hanoi, Vietnam. From 2001-2004, Dr. Wolfe served as a medical epidemiologist, and then Team Leader, for the Clinical Outcomes Team, Behavioral and Clinical Surveillance Branch, National Center for HIV, STD, and TB Prevention. In this position, Dr. Wolfe was a project officer for the largest US HIV cohort clinical surveillance project, the Adult and Adolescent Spectrum of Disease. Dr. Wolfe performed several special assignments with CDC, including with the Bioterrorism Preparedness and Response Branch supporting CDC's response to the anthrax attacks, and participated in the first national, population-based survey of mortality, disability, and mental health in Afghanistan in 2001. Dr. Wolfe joined CDC in July 1998 as an Epidemic Intelligence Service (EIS) Officer with the National Center for Environmental Health, leading investigations on infectious disease mortality, heat-related mortality, rotavirus vaccine-related intussusception in infants, syphilis in prisons, and exposures to heavy metals related to a large forest fire. In June 1998, he completed a Preventive Medicine Residency with the State Department of Health in California, assigned to the Sonoma County Health Department. Dr. Wolfe is a Captain in the USPHS, has American Board Certification in General Preventive Medicine and Public Health, earned a Bachelor of Arts degree in English Literature from the University of California, Santa Barbara, a Master of Public Health degree from the University of California, Berkeley, and received his MD from the University of Vermont, College of Medicine.

### **Moderator – Darryl Zeldin, National Institute of Environmental Health Sciences**

Darryl C. Zeldin, M.D., is a Senior Investigator and the Scientific Director at the National Institute of Environmental Health Sciences, National Institutes of Health. He is an internationally recognized expert on eicosanoids (lipid mediators) and their role in regulating cardiovascular and respiratory function. He is also an expert on environmental causes of asthma. Dr. Zeldin received his medical degree from Indiana University in 1986. He completed an Internal Medicine Residency at Duke University Medical Center in 1989 and a Fellowship in Pulmonary/Critical Care Medicine at Vanderbilt University in 1993. He was recruited to the NIH in 1994 and promoted to Senior Investigator with Tenure in 2001. He directs a research program at NIH which involves both basic and clinical/translational studies. Dr. Zeldin is Board Certified in Internal Medicine and Pulmonary Medicine, is a Fellow in the American College of Chest Physicians, a Fellow in the American Heart Association and is an elected member of the American Society for Clinical Investigation and American Association of Physicians. Dr. Zeldin has co-authored over 300 primary peer-reviewed articles and his work has been cited over 16,000 times.

## Links and Resources Shared during GEH Day

### Exhibitors

**Duke Global Health Institute**

**North Carolina Central University**

**Duke-UNC Rotary Peace Center**

**NIEHS Library**

**Intrahealth International**

**Triangle Global Health Consortium**

### Resources

**Curamericas Global**

<https://www.curamericas.org/>

**National Toxicology Program**

<http://www.niehs.nih.gov/research/atniehs/dntp/assoc/ohat/index.cfm>

**Duke Global Health Institute**

<https://globalhealth.duke.edu/>

**NIEHS Global Environmental Health**

<http://www.niehs.nih.gov/research/programs/geh/index.cfm>

**Duke Nicholas School of the Environment**

<https://nicholas.duke.edu>

**NIEHS Research Training**

<http://www.niehs.nih.gov/careers/research/index.cfm>

**Duke-UNC Rotary Peace Center**

<http://rotarypeacecenternc.org/>

**GeoHealth**

<https://www.fic.nih.gov/programs/Pages/environmental-occupational.aspx>

**North Carolina Central University**

<http://www.nccu.edu/bbri/index.cfm>

**Grow with Nigeria**

<http://www.growwithnigeria.org/>

**One Health Commission**

<http://onehealthcommission.org>

**Intrahealth International**

<http://www.intrahealth.org/>

**RTI International**

<https://www.rti.org>

**Triangle Global Health Consortium**

<http://www.triangleglobalhealth.org/>

**University of North Carolina at Chapel Hill Gillings**

**School of Global Public Health**

<http://sph.unc.edu/>

**U.S. Department of Health and Human Services**

**Office of Global Affairs**

<http://www.hhs.gov/about/agencies/oga/index.html>

**U.S. Environmental Protection Agency**

<https://www3.epa.gov>

## **Connect with NIEHS Global Environmental Health**

**GEH Homepage:** <http://www.niehs.nih.gov/research/programs/geh/index.cfm>

**Listserv:** Send email to [NIEHS-GEH-NEWS@LIST.NIH.GOV](mailto:NIEHS-GEH-NEWS@LIST.NIH.GOV)

**Newsletter:** <http://www.niehs.nih.gov/news/newsletter/subscribe-newsletter.cfm>

**Podcasts:** <http://www.niehs.nih.gov/research/programs/geh/podcasts/>

