EMERGING SCIENCE FOR ENVIRONMENTAL HEALTH DECISIONS

AGENDA

# Towards a Future of Environmental Health Sciences — A Workshop

**April 26-27, 2022**

**FOR REGISTRATION AND MORE INFORMATION, PLEASE VISIT THE WORKSHOP WEBSITE**
**ALL TIMES LISTED ARE IN EASTERN TIME**

This workshop will model future scenarios of a research enterprise that fully integrates environmental health science into broader studies of human health.

Specifically, workshop participants will explore environmental health futures that integrates biomedical, disease-specific, and prevention research, and is conducted across the continuum from fundamental discovery research to applications to public health.

Invited speakers and panelists will consider how to reach desired futures, including scientific, technical, and policy needs and enablers of this future. A series of future scenarios, from the lens of individuals to communities to global challenges, will be used to focus the dialogue on advancing environmental health sciences. This workshop builds on the Standing Committee's 2021-2022 strategic activities in bringing together experts and interested stakeholders to examine emerging scientific advances and the potential applications to environmental and public health.

## TUESDAY April26, 2022 10:00 AM – 4:20 PM ET

10:00 Welcome and Opening Remarks—**Kim Boekelheide**[*], Brown University

10:15 **Redesigning the Future of Environmental Health- A Ten Year Horizon**

-**Kristen Malecki**[*†], University of Wisconsin-Madison
-**Nicky Sheats**, Kean University
-**Andrew Geller**, U.S. Environmental Protection Agency (EPA)
-**Kate Marvel**, Columbia University, NASA Goddard Institute for Space Studies

Moderator: **Melissa Perry**[*], George Washington University

11:40 Break

12:00 **SESSION 1: Dialogue on Environmental Health and Precision Medicine**

*This scenario-based session will focus on how to best utilize the integration of environmental and exposures data, genomics, and other health information to advance precision medicine.*

Panel
-**Julia Brody**, Silent Spring Institute
-**Brandon Pierce**, University of Chicago
-**Elena Rios**, National Hispanic Medical Association
-**Kyler Sherman-Wilkins**, Missouri State University
-**Alicia Zhou**, Color Health

Moderator: **Weihsueh Chiu**[*], Texas A&M University

1:15 Break

1:30 **SESSION 2: Dialogue on the Exposome & Population Health for Environmental Justice**

*The panelists will discuss opportunities and challenges of using the exposome, and other technology and tools to advance research efforts and protect the most vulnerable and promote environmental justice in a scenario-based exercise.*

Panel
-**Aisha Dickerson**, John Hopkins University
-**Paul Juarez**, Meharry Medical College
-**Sacoby Wilson,** University of Maryland
-**Robert Wright**, Icahn School of Medicine at Mount Sinai
-**Ami Zota**, George Washington University

Moderator: **Chandra Jackson**[†], National Institute of Environmental Health Sciences

2:45 Break

**3:00 SESSION 3: Dialogue on Decision-making for Climate Change and Health**

*This scenario-based session will focus addressing global environmental health challenges—climate change.*

Panel
- **Karen Bailey**[*†], University of Colorado, Boulder
- **Christine K. Johnson**, University of California, Davis
- **Patrick Kinney**, Boston University
- **Na'Taki Osborne Jelks**, Spelman College

Moderator: **Patrick McMullen**[*†], Scitovation

4:15 Wrap Up

4:30 Adjourn Day 1

**WEDNESDAY April27, 2022 10:00 AM – 2:00 PM ET**

10:00 Welcome— **Kristen Malecki**[*†], University of Wisconsin-Madison

10:05 **SESSION 4: Agency Perspectives and Opportunities**

**Rick Woychik**, National Institute of Environmental Health Sciences
**Richard Hodes**, National Institute on Aging
**Shannon Zenk,** National Institute of Nursing Research
**Gary Ellison**, National Cancer Institute

Moderator: **Gary Miller**[*†], Columbia University

11:20 Break

11:30 Reflections on Day 1—**Patrick McMullen**[*†], Scitovation

12:00 **SESSION 5: New Voices and New Collaborations**

*The speakers will explore how to reach various desired futures of a research enterprise that fully integrates environmental health science into broader studies of human health and disease through building new collaborations and working across disciplines and sectors.*

**Chandra Jackson**, National Institute of Environmental Health Sciences
**Jamaji Nwanaji-Enwerem**, Emory University
**Martin Mulvihill**, Safer Made
**Kim Fortun**, University of California, Irvine

Moderator: **Christina Park**[†], National Institutes of Health

1:15 Synthesis and Closing Remarks —**Kristen Malecki**[*†], University of Wisconsin-Madison

1:30 Adjourn

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[*] Member of the Standing Committee on the Use of Emerging Science for Environmental Health Decisions
[†] Member of the workshop organizing committee

**Workshop Organizing Committee**

This workshop was organized by the following experts: **Karen Bailey,** University of Colorado

at Boulder; **Chandra Jackson,** National Institute of Environmental Health Sciences**; Kristen Malecki,** University of Wisconsin-Madison; **Patrick McMullen,** ScitoVation; **Gary Miller,** Columbia University; **Christina Park,** National Institutes of Health.

## About the Standing Committee on the Use of Emerging Science for Environmental Health Decisions

The National Academies' Standing Committee on the Use of Emerging Science for Environmental Health Decisions (ESEHD) examines and discusses issues on the use of new science, tools, and research methodologies for environmental health decisions. The ESEHD committee is organized under the auspices of the Board on Life Sciences and the Board on Environmental Studies and Toxicology of the National Academies of Sciences, Engineering, and Medicine, and sponsored by the National Institute of Environmental Health Sciences.

## 12:00 SESSION 1: Dialogue on Environmental Health and Precision Medicine

**Session 1 objective:** What new frameworks, people and approaches are needed to address opportunities and challenges in precision medicine that integrates environmental and exposures data over the next 10 years.

**Scenario:** A patient from a community visits primary care physician complaining of difficulty breathing, occasional rashes, and constant headaches. Her family has a history of cancer, another close relative was recently diagnosed with cardiovascular dementia, and grandchildren living nearby who suffers from asthma was also recently diagnosed with a learning disability. The patient wants to know if these are all connected and if the environment could play a role. In 2032, physicians will have access to genomics and other –omics data, environmental and exposures data, and lifestyle/behavioral factors.

## 1:30 SESSION 2: Dialogue on the Exposome & Population Health for Environmental Justice

**Session 2 objective:** Identify frameworks, stakeholders, and approaches (e.g., operationalizing the exposome) across the entire spectrum of the research enterprise needed to address challenges related to health disparities as well as to advance environmental justice over the next 10 years.

**Scenario:** In eastern North Carolina, largely African American residential communities near swine industrial livestock operations that have been producing air pollutants (including distressing odorant emissions) associated with negative health outcomes for decades are indeed experiencing higher than expected poor health outcomes, including clusters of cancer and neurodevelopmental disorders. We have new tools (e.g., exposomic and polygenic risk scores) that can be leveraged to assess the most common types of cancer and chronic diseases. A central database containing comprehensive information on biomarkers of dietary, chemical, and pollution exposures is accessible to the public. A task force including policy makers and environmental scientists are working with the community to develop a plan for full remediation and to address environmental justice concerns in their community.

## 3:00 SESSION 3: Dialogue on Decision-making for Climate Change and Health

**Session 3 objective:** What new frameworks, people and inclusive approaches are needed to incorporate best science into climate adaptation, policy planning, and public health in inclusive and equitable ways

**Scenario:** The US is budgeting $1 billion nationwide for community-driven initiatives to help address climate change and related health issues. A governors meeting is convened to determine how to allocate the $1 billion to communities across the U.S. Scientists and community leaders have gathered to present data on the impact of severe weather events including:

a) wildfires impacting air quality (data using real-time air pollution monitoring)
b) severe drought and the impact on farmers and rural communities
c) floodings
d) extreme winter storms