

Exploring Research Opportunities at the Intersection of Planetary and Cardiovascular Health Virtual Workshop

December 14-15, 2023

Agenda



AGENDA

Thursday, December 14, 2023

10:00 - 10:05 am	<p>Welcome</p> <p><i>Lawrence Fine, MD, Dr. PH, FAHA-DCVS-NHLBI, Chair of Workshop Planning Committee</i></p> <p><i>Sujata M. Shanbhag, MD, MPH-DCVS-NHLBI, Workshop Planning Committee</i></p> <p><i>Patrice Desvigne-Nickens, MD-DCVS-NHLBI, Workshop Planning Committee</i></p>
10:05 - 10:10 am	<p>Opening Remarks</p> <p><i>David Goff, MD, PhD, FACP, FAHA-Director, Division of Cardiovascular Sciences, NHLBI</i></p>
10:10 - 10:20 am	<p>Workshop Objectives: Charge to Presenters and Participants</p> <p><i>Sanjay Rajagopalan, MD, MBA, FACC, FAHA - University Hospitals & Case Western Reserve University, Cleveland, OH</i></p> <p><i>Sonia Angell, MD, MPH - Johns Hopkins University, Baltimore, MD</i></p>
10:20 am - 12:40 pm	<p>Session 1: Planetary & Cardiovascular Health: Exploring the Relationships and Dimensions of Interactions</p>
10:20 - 10:40 am	<p>Is Destroying Nature Breaking our Hearts? Connections Between Cardiac Health and Global Environmental Change</p> <p><i>Samuel S. Myers, MD, MPH - Johns Hopkins University - Baltimore, MD</i></p> <p><i>The status of planetary boundaries, elaborating on climate change and other planetary boundaries that have been exceeded, and on their impact on ecological conditions necessary for health will be outlined.</i></p>

AGENDA (CONT.)

Thursday, December, 14, 2023 (Cont.)

10:40 - 10:55 am	<p>A Socioecological Understanding of Cardiovascular Disease Inequities</p> <p><i>Anna V. Diez Roux, MD, PhD, MPH - Drexel University - Philadelphia, PA</i></p> <p><i>Through the socio-ecologic model, the relationship between the social determinants of health (SDoH) and CV health will be explored and then expanded to the conditions for planetary health, to illustrate the planetary-CV health interdependency.</i></p>
10:55 - 11:10 am	<p>Introduction to Systems Thinking Approaches to Understand Health and Planetary Health</p> <p><i>Peter S. Hovmand, PhD, MSW - Case Western Reserve University - Cleveland, OH</i></p> <p><i>The interconnectedness and mutual interdependence of both social and planetary conditions to determine current systems issues such as climate change and human health will be explored.</i></p>
11:10 - 11:30 am	<p>Planetary Health Exposures, Climate Change and the Relationship to Cardiovascular Health</p> <p><i>Jonathan Newman, MD, MPH, FAHA, FACC - New York University - New York, NY</i></p> <p><i>Multiple exposures, such as air pollution, heat, social stressors, chemical exposures, circadian disruption infectious diseases, may occur as a result of disruption of boundary conditions. The health exposure model with attention to multiple disruptors (not just climate related temperature changes) will be discussed.</i></p>

AGENDA (CONT.)

Thursday, December 14, 2023 (Cont.)

11:30 - 11:45 am

Environmental Justice (EJ) as requisite to Planetary and CV Health Research and Policy/The Importance of Community Engaged Research in Selecting Local Research Priorities

Sacoby Wilson, PhD, MS – University of Maryland - College Park, MD

Environmental Justice is a pre-requisite for successful and sustainable solutions for current CV health inequities. The EJ movement is a growing area of research that organically brings together the issues of planetary and human health and equity, with a natural conduit for community engagement and direction from those with lived experience. Community engaged research can help identify populations that are at high risk and ensure that communities are involved in the design and execution of cardiovascular-planetary health research projects. Discussion of strategies to successfully conduct community engaged research will be included and research opportunities related to the intersection of planetary health and cardiovascular health will be reviewed.

11:45 am - 12:00 pm

All Our Relations: Indigenous Knowledge and Systems Thinking in Planetary Health

Alexandra Adams, MD, PhD – Montana State University - Bozeman, MT

Steven Davis, Masters Candidate in Engineering – Montana State University - Bozeman, MT

Building upon the earlier presentations on the social determinants of health and their relationship with planetary and individual CV health, an indigenous perspective of the determinants of health and the planet will be explored. Indigenous models and approaches to related research will be discussed.

AGENDA (CONT.)

Thursday, December 14, 2023 (Cont.)

12:00 - 12:40 pm	Discussion of Research Gaps and Opportunities from Session 1 Moderator: <i>Caren Solomon, MD, MPH - New England Journal & Harvard University - Boston, MA</i>
12:40 - 1:10 pm	Lunch Break
1:10 - 3:15 pm	Session 2: An Integrative Framework to Drive Optimal Cardiovascular Health Through Infrastructure Redesign
1:10 - 1:30 pm	Infrastructure and Food System Transformations for Human and Planetary Health <i>Anu Ramaswami, PhD, MS - Princeton University - Princeton, NJ</i> <i>In this opening session the broad topic of infrastructural transformations, including key provisioning systems of Food, Housing, Energy, Mobility/Transportation, Waste/Water management, green infrastructure as key determinants of environmental exposures, will be discussed.</i>
1:30 - 1:45 pm	Integrating Air Quality and Health Considerations into Low-Carbon Energy Decisions <i>Wei Peng, PhD, - Princeton University - Princeton, NJ</i> <i>This session will include a closer look at the opportunities to design energy strategies with the intent of attaining net zero and understanding the possible impact by advancing modeling capabilities to assess the air quality and health impacts of energy transition.</i>

AGENDA (CONT.)

Thursday, December 14, 2023 (Cont.)

1:45 - 2:00 pm

Harnessing Food Systems as a Solution for a Changing Climate

Jessica Fanzo, PhD - Columbia University - New York, NY

Aligning food systems to achieve both planetary and CV goals will be explored through the spectrum of shifting population dietary patterns. Systems approaches will be applied to understand impacts across of related systems due to shifts in population nutrition needs and demands.

2:00 - 2:15 pm

Water Systems: At the Nexus of Human and Planetary Health

Bassel Daher, PhD - Texas A&M University - College Station, TX

This talk explores the interconnections of water systems with human and planetary health. It underscores the necessity of adopting a systems approach to assess synergies, trade-offs, and guide evidence-based decision-making, with a focus on promoting cardiovascular health, and sustainable development for humans and the planet. It describes the current status of water access and quality, and discusses evolving research methodologies and research needs to support creating sustainable, resilient, and equitable water systems, for all.

AGENDA (CONT.)

Thursday, December 14, 2023 (Cont.)

2:15 - 2:35	<p>Water Toxicants and Cardiovascular Health: Opportunities for Prevention and Intervention</p> <p><i>Ana Navas-Acien, MD, PhD - Columbia University - New York, NY</i></p> <p><i>Chemical exposures in water due to heavy metals including, arsenic, lead and manufactured chemicals (halogenated hydrocarbons, perfluoroalkyl substances (PFAS)), and plastic-associated chemicals are increasingly implicated in cardiometabolic conditions. This session will explore the associations between chemical concentrations in water supplies and cardiovascular outcomes. Potential mitigation and preventative strategies will be reviewed, and further research opportunities will be identified.</i></p>
2:35 - 3:15 pm	<p>Discussion of Research Gaps and Opportunities from Session 2</p> <p>Moderator: <i>Joel D. Kaufman, MD, MPH - University of Washington - Seattle, WA</i></p>
3:15 - 3:30 pm	<p>Break</p>
3:30 - 4:50 pm	<p>Planetary Health Systems Simulation Demo: "EN-ROADS"</p> <p><i>Jason Jay, PhD, MEd - Massachusetts Institutes of Technology - Cambridge, MA</i></p>
4:50 - 5:00 pm	<p>Day 1 Wrap Up and Adjourn</p> <p><i>Lawrence Fine, MD, Dr.PH, FAHA- DCVS-NHLBI, Chair of Workshop Planning Committee</i></p>

AGENDA (CONT.)

Friday, December 15, 2023

10:00 - 10:05 am	<p>Welcome</p> <p><i>Lawrence Fine, MD, Dr.PH, FAHA-DCVS-NHLBI, Chair of Workshop Planning Committee</i></p>
10:05 - 12:00 pm	<p>Session 3: Planetary and Cardiovascular Health Through Reducing Urban Exposures</p>
10:05 - 10:20 am	<p>Cities for Life: Advancing Cardiovascular and Environmental Health via Urban Planning</p> <p><i>Yingling Fan, PhD - University of Minnesota - Minneapolis, MN</i></p> <p><i>This lecture will cover core urban planning concepts of relevance to cardiovascular health and the need for health impact assessment from a cardiometabolic framework.</i></p>
10:20 - 10:35 am	<p>Structural Inequities in Urban Planetary and Cardiovascular Health: Understanding Drivers and Solutions</p> <p><i>Jaime Madrigano, ScD, MPH - Johns Hopkins University - Baltimore, MD</i></p> <p><i>The association between redlining and health outcomes has been documented in multiple studies with enduring effects that continue till today. In this session the evidence to date and systems-based approaches to address solutions will be presented.</i></p>

AGENDA (CONT.)

Friday, December 15, 2023 (Cont.)

10:35 - 10:55 am	<p>Active Transportation for Cardiovascular and Planetary Health</p> <p><i>James F. Sallis, PhD – University of California San Diego – San Diego, CA</i></p> <p><i>The primary health hazards of motorized transportation and health benefits of active transportation (walking, bicycling, public transit) will be addressed. Approaches to mitigate heat effects for pedestrians and cyclists will be needed. Suggested research opportunities will emphasize evidence to inform solutions.</i></p>
10:55 - 11:10 am	<p>Urban Food Systems and Cardiovascular Health</p> <p><i>Christopher Gardner, FAHA, PhD – Stanford University – Stanford, CA</i></p> <p><i>This presentation will explore approaches to promoting cardiovascular health in urban settings through urban food system evolutions.</i></p>
11:10 - 11:25 am	<p>Urban Greenness and Cardiovascular Health</p> <p><i>Aruni Bhatnagar, PhD, FAHA – University of Louisville – Louisville, KY</i></p> <p><i>Green infrastructure includes a variety of nature-based solutions being deployed in conjunction with conventional “gray” infrastructure in communities. In urban environments, this may include larger green infrastructure such as areas of tree canopy, landscape patches, and green corridors, but also smaller representations of nature (e.g., green roofs, bioswales) that provide health-supporting benefits. Several prior meta-analyses and studies have suggested an association between green space and health benefits. In this session, evidence to date will be reviewed together with gaps in research and information needed for policy.</i></p>

AGENDA (CONT.)

Friday, December 15, 2023 (Cont.)

11:25 - 12:00 pm	Discussion of Research Gaps and Opportunities from Session 3 Moderator: <i>Carl J. Pepine, MD, MACC - University of Florida - Gainesville, FL</i>
12:00 - 12:30 pm	Lunch Break
12:30 - 1:35 pm	Session 4: Tools and Policies for Planetary and Cardiovascular Health Improvement
12:30 - 12:45 pm	Data Analytics and Tools to Develop Spatial Indicators for Healthy and Sustainable Cities <i>Geoff Boeing, PhD, MS - University of Southern California - Los Angeles, CA</i> <i>An overview of tools and approaches available to facilitate this process will be discussed. These tools, in combination with remote sensing, social media, and Internet of Things (IoT) devices, provide a comprehensive understanding of urban dynamics and contribute to the development of spatial indicators that guide the planning and design of healthy and sustainable cities.</i>

AGENDA (CONT.)

Friday, December 15, 2023 (Cont.)

12:45 - 1:00 pm

The Role of Causal Inference in Assessing Planetary Health Effects on Cardiovascular Disease

Marie-Abèle Bind, PhD – Harvard University and Massachusetts General Hospital – Boston, MA

The field of environmental health has been dominated by modeling associations, especially by regressing an observed outcome on a linear or nonlinear function of observed covariates. Readers interested in advances in policies for improving environmental health are, however, expecting to be informed about health effects resulting from, or more explicitly caused by, environmental exposures. The quantification of health impacts resulting from the removal of environmental exposures involves causal statements. Therefore, when possible, causal inference frameworks should be considered for analyzing the effects of environmental exposures on health outcomes.

1:00 - 1:20 pm

Exploring Cardiovascular Risk in a Changing World: Big Data Insights into Planetary Health Interconnections

Sadeer Al-Kindi, MD, FACC – Houston Methodist – Houston, TX

Approaches to integrated datasets with exposure data or environmental stressors, with health endpoints such as CVD risk factors or diseases, and measures of social vulnerability such as social vulnerability index, will be discussed. Combined datasets (Big Data), AI and ML, can identify populations at greater risk, estimate the role of exposures in disease causation, and evaluate secular trends.

AGENDA (CONT.)

Friday, December 15, 2023 (Cont.)

1:20 - 1:35 pm

Integrated Decision Planning and Health Impact Studies to Enable Informed Policy Decisions for Improving Cardiovascular Health

Gregory Wellenius, SCD, MSc – Boston University - Boston, MA

Health metrics alongside other data, such as air quality, access to healthcare facilities, and socioeconomic indicators, can facilitate integrated decision planning across different sectors, including urban planning, transportation, and environmental management, to address the root causes of cardiovascular health issues. By leveraging data analytics and modeling techniques, policymakers can simulate the health outcomes of policy scenarios (health impact studies) and select the most effective strategies for improving cardiovascular health outcomes.

1:35 - 2:45 pm

Discussion of Research Gaps and Opportunities from Session 4

Moderator: Sadeer Al-Kindi, MD, FACC - Houston Methodist - Houston TX

2:45 - 3:00 pm

Day 2 Wrap Up - Next Steps

Sanjay Rajagopalan, MD, FACC, FAHA - Case Western University, Cleveland, OH

Sonia Angell, MD, MPH - Johns Hopkins University - Baltimore, MD

Closing Remarks

Lawrence Fine, MD, Dr.PH, FAHA- DCVS-NHLBI, Chair of Workshop Planning Committee