

Workshop Title: Exploring The Research Opportunities From The Intersection Of Advancing Planetary Health And Cardiovascular Disease: Improving Human Health And Planetary Health

Day 1: December 14th, 2023

Session 1 - Planetary & Cardiovascular Health: Exploring the Relationships and Dimensions of Interactions

Discussion Moderator: Caren Solomon, MD, MPH

Time	Topic	Description of Presentation	Speaker
10:00 - 10:10 AM	Welcome and Opening	Chair of Workshop Planning Committee, Larry Fine and Division Director, David Goff	
10:10 - 10:20 AM	Workshop Objectives: Charge to Presenters and Participants	Workshop Co-chairs: Sanjay Rajagopalan and Sonia Angell	
10:20 - 10:40 AM	Planetary Health Ecological Boundaries: Current Status and Necessary Conditions	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.	Sam Myers
10:40 - 10:55 AM	Social Foundations of Planetary and Cardiovascular Health	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.	Anna Diez Roux
10:55 - 11:10 AM	Introduction to Systems Thinking Approaches to Understand Health and Planetary Health	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.	Peter Hovmand
11:10 - 11:30 AM	Planetary Health Exposures including Climate Change and the Relationship to Cardiovascular Health	Multiple exposures such as air pollution, heat, social stressors, chemical exposures, circadian disruption infectious diseases etc. 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.	Jonathan Newman

Time	Topic	Description of Presentation	Speaker
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	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 direct from those with lived experience. Community engaged research can help identify populations that are at high risk and ensuring 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.	Sacoby Wilson
11:45 AM – 12:00 PM	Indigenous Knowledge and Systems Thinking in Planetary Health	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.	Alex Adams and Steven Davis
12:00 – 12:30 PM	Lunch Break		
12:30 - 1:10 PM	<i>Moderated Discussion</i>	<i>Research Gaps and Opportunities</i> from Session 1	Moderator/All Caren Solomon

Session 2 - An Integrative Framework to Drive Optimal Cardiovascular Health Through Infrastructure Redesign

Discussion Moderator: Joel Kaufman, MD, MPH (Invited)

Time	Topic	Description of Presentation	Speaker
1:10 - 1:30 PM	Infrastructural Transformations at the nexus of Cardiovascular Health and Planetary Health	In this opening session the broad topic of infrastructural transformations or key provisioning systems of Food, Housing, Energy, Mobility/Transportation, Waste/Water management, green infrastructure as key determinants of environmental exposures will be discussed.	Anu Ramaswami
1:30 - 1:45 PM	Energy Transition and Low Carbon Cities: Opportunities to Reduce Cardiovascular Events in Cities.	In this session a closer look at the opportunities to design energy strategies with the intent of attaining net zero and understanding the possible impact by <i>advancing modeling capabilities to assess the air quality and health impacts of energy transition</i>	Wei Peng
1:45 - 2:00 PM	Food Systems: Evidence driven design of sustainable and equitable food systems for Cardiovascular Health	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.	Jess Fanzo
2:00 - 2:15 PM	Water Systems: A Crisis on the frontline of Cardiovascular Health	Failing urban water infrastructure further undermines continuity of access to safe, and affordable water in densely populated areas. This presentation will describe the current status of water safety and access, discuss evolving research methodologies and research needs to support creating reliable, planet safe, equitable and resilient drinking water access for all.	Bassel Daher

Time	Topic	Description of Presentation	Speaker
2:15 - 2:35 PM	Toxin Reduction, Waste Management, and Sanitation as Opportunities to Reduce Cardiovascular Events	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.	Ana Navas-Acien
2:35 - 3:15 PM	<i>Moderated Discussion</i>	<i>Research Gaps and Opportunities</i>	Moderator/All Joel Kaufman
3:15 - 3:30 PM	Break		
3:30 - 4:50 PM	Planetary Health Systems Simulation		Jason Jay
4:50 - 5:00PM	Day 1 Wrap-Up	Wrap-Up and Adjourn	

Day 2: December 15th, 2023

Session 3 - Planetary & Cardiovascular Health Through Reducing Urban Exposures

Moderator: Aaron Bernstein, MD, MPH (Invited)

Time	Topic	Description of Presentation	Speaker
10:00 - 10:05 AM	Welcome		
10:05 - 10:20 AM	Urban Design and Planning as an Opportunity to Impact Cardiovascular Health and advance Planetary Health Goals: Compact, Low Carbon Cities	This lecture will cover core urban planning concepts of relevance to cardiovascular health and the need for health impact assessment from cardiometabolic framework.	Yingling Fan

Time	Topic	Description of Presentation	Speaker
10:20 - 10:35 AM	Redlining: Its Enduring Urban Infrastructure Design Legacy Impacting on U.S. Urban Planetary and CV Health And Structural Inequities	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 addressed.	Jaime Madrigano
10:35 - 10:55 AM	Transportation and Links to Cardiovascular Health	The current evidence between transportation or ultrafine air pollution and cardiovascular events will be reviewed including opportunities for studies in this area, particularly centered around the electrification of the transportation sector.	James Sallis
10:55 - 11:10 AM	Urban Food Systems and Cardiovascular Health	This presentation will explore approaches to promoting cardiovascular health in urban settings through urban food system evolutions.	Chris Gardner
11:10 - 11:25AM	Greenery, Green Infrastructure and Cardiovascular Health	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. In this session evidence to date will be reviewed together with gaps in research and information needed for policy.	Aruni Bhatnagar
11:25 AM - 12:00 PM	<i>Discussion</i>	<i>Research Gaps and Opportunities</i>	Moderator
12:00 – 12:30 PM	Lunch Break		

Session 4 – Tools and Policies for Planetary and Cardiovascular Health Improvement

Discussion Moderator:

Time	Topic	Description of Presentation	Speaker
12:30 - 12:45 PM	Data Analytics and Tools to develop Spatial Indicators for Healthy and Sustainable Cities	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.	Geoff Boeing
12:45 - 1:00 PM	The role of causal inference in studying health effects of planetary health on cardiovascular disease and in determining the intended and unintended impact of strategies to adapt to and mitigate the adverse impacts of planetary health adverse impacts.	How to apply the most valid techniques of causal inference to observational studies that examine whether reduction in air pollution from electrification of transportation results in health improvements. How observational studies can examine the intended and unintended consequences of policy and public health practices	Marie Abele Bind
1:00 - 1:20 PM	Big Data and Computational Approaches for Studying Cardiovascular Health and Planetary Health interrelationships, and Identifying Populations, Communities, At Increased Cardiovascular Risk Due To Changes In Planetary Health	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.	Sadder Al-Kindi

Time	Topic	Description of Presentation	Speaker
1:20 - 1:35 PM	Integrated Decision Planning and Health Impact Studies to enable informed policy decisions for improving cardiovascular health	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.	Greg Wellenius
1:35 - 2:45 PM	<i>Discussion</i>	<i>Research Gaps and Opportunities</i>	Moderator /All
2:45 - 3:00 PM	Workshop Wrap-Up	Workshop Synthesis, Discussions on Workshop Manuscript	