



## HEI Annual Conference Program

May 1–3, 2016  
Denver, Colorado

### Sunday May 1, 2016

#### 9 – 11 am **Pre-Conference Workshop: Demystifying Causal Inference in Air Pollution Epidemiology**

Leaders: *Cory Zigler and Francesca Dominici*, Harvard T.H. Chan School of Public Health

Causal modeling techniques have been proposed as alternatives to conventional epidemiological methods for making inferences about the relationships between air pollution exposures and public health outcomes. This workshop aims to provide attendees with a basic introduction to causal modeling methods and, drawing on details from recent HEI-funded research, with useful insights into the conceptual benefits and practical challenges in their application and interpretation. This preconference workshop is open to all conference attendees.

11:30 am Lunch

#### 1:00 pm **The Heat is On: Climate, Air Pollution, and Health**

Chairs: *Warren Washington*, National Center for Atmospheric Research and HEI Board of Directors, and *Jana Milford*, University of Colorado–Boulder and HEI Review Committee

Air pollution and climate are intricately linked. Changes in global climate may alter temperature, precipitation, wildfire, and dust storm patterns, all of which may affect air pollution and public health. Correspondingly, air pollutant levels may affect climate. Regulations aimed at reducing specific air pollutants could either work in concert with or counteract efforts to reduce potential climate forcing agents. This session will explore recent developments in climate research, including health effects from heat, droughts, and forest fires, and how air pollution and climate interact.

1:05 Introduction  
*Warren Washington*

1:15 Modeling climate and air quality  
*Christine Wiedinmyer*, National Center for Atmospheric Research

1:45 U.S. Global Change Research Program on Climate Change and Human Health  
*Allison Crimmins*, U.S. Environmental Protection Agency

2:15 Health effects of temperature and its interaction with air pollution: methodological issues and preliminary results from a multi-country study  
*Antonio Gasparrini*, London School of Hygiene & Tropical Medicine, United Kingdom

2:45 Implications of climate change for pollen and allergic diseases  
*Kate Weinberger*, Brown University

3:15 Conclusions  
*Jana Milford*

3:25 General Discussion

3:45 pm Break

#### 4:00 pm **Poster Session 1**

#### 6:00 pm **Opening Reception and Dinner**

#### 8:00 pm **Keynote Speaker**

*Christopher Murray*, Director, Institute for Health Metrics and Evaluation, University of Washington–Seattle

## Monday May 2, 2016

7:00 am Breakfast

### 8:30 am HEI Update

Chairs: *David Eaton*, University of Washington–Seattle and Chair of the HEI Research Committee, and *James Merchant*, University of Iowa and Chair of the HEI Review Committee

HEI will present progress of its research programs and publications. Highlights will include updates of HEI's recent work on diesel exhaust and plans for new research on 21<sup>st</sup> century oil and gas development. We will also introduce the recipient of the 2015 Walter A. Rosenblith New Investigator Award.

- 8:30 Introduction of the Committees  
*David Eaton and James Merchant*
- 8:45 Presentation of the 2015 Walter A. Rosenblith Award  
*David Eaton*
- 8:50 Upcoming scientific activities at HEI  
*Rashid Shaikh*, Health Effects Institute
- 9:00 HEI's 21<sup>st</sup> Century Oil and Natural Gas Development Project  
*Donna Vorhees*, Health Effects Institute
- 9:20 Progress on diesel and looking ahead  
*Dan Greenbaum*, Health Effects Institute
- 9:40 Discussion

10:00 am Break

### 10:30 am How Low Should We Go? New Research on Low-Level Air Pollution

Chairs: *Amy Herring*, University of North Carolina–Chapel Hill and HEI Research Committee, and *Roger Peng*, Johns Hopkins Bloomberg School of Public Health and HEI Review Committee

Although levels are declining in high-income regions, epidemiological studies continue to report associations of air pollution with adverse health effects in the general population even at levels below current air quality standards, providing a continuing impetus for lower standards. This session will review those epidemiological studies, highlight HEI's new efforts on this topic, and discuss critical study design considerations and challenges that the studies will need to confront.

- 10:30 Overview of RFA 14-3: assessing health effects of low levels of air pollution.  
*Jonathan Samet*, University of Southern California
- 10:40 New HEI studies assessing health effects of low levels of air pollution.  
*Hanna Boogaard*, Health Effects Institute
- 10:50 What do policy makers and risk assessors need to know about adverse air pollution effects at low levels?  
*Bryan Hubbell*, U.S. Environmental Protection Agency
- 11:05 The current knowledge on adverse effects of low-level air pollution  
*Antonella Zanobetti*, Harvard T.H. Chan School of Public Health
- 11:30 Critical methodologic issues in planning for studies assessing low levels of air pollution.  
*Arden Pope*, Brigham Young University
- 11:55 Panel Discussion  
Panelists: *Mark Utell*, University of Rochester, *Jonathan Samet*, *Bryan Hubbell*, *Antonella Zanobetti*, *Arden Pope*

12:30 pm Lunch

### 1:30 pm Poster Session 2

3:00 pm Break

### **3:15 pm      The Global Burden of Disease from Air Pollution and Its Major Sources**

Chairs: *Michal Krzyzanowski*, King's College London, and *Terry Keating*, U.S. Environmental Protection Agency

The Global Burden of Disease (GBD) 2013 study estimated that exposure to fine particulate air pollution contributed to some 2.9 million premature deaths in 2013, with nearly two-thirds of those deaths occurring in China, India, and other developing Asian countries. This session will present the most recent estimates of the burden due to air pollution in 2013 and trends from 1990 to 2013, as well as new estimates of current and future projected burden of disease from coal-burning and other major pollutant sources in China and India from HEI's GBD MAPS project.

- 3:15    Introduction  
*Chairs*
- 3:25    The Global Burden of Disease due to air pollution and its major sources: Estimates from the GBD 2013 study  
*Aaron Cohen*, Health Effects Institute
- 3:45    Estimates of emissions and PM<sub>2.5</sub> levels from major air pollution sources in China  
*Ma Qiao*, Tsinghua University, China
- 4:05    Estimates of emissions and PM<sub>2.5</sub> levels from major air pollution sources in India  
*Sarath Guttikunda*, Indian Institute of Technology Bombay, India
- 4:25    Current and future burden of disease from major air pollution sources in China and India  
*Michael Brauer*, University of British Columbia, Canada
- 4:45    Panel and general discussion  
*Panelists: Jonathan Samet*, University of Southern California and *Kalpna Balakrishnan*, Sri Ramachandra University, India

### **5:30 pm      Free Evening**

## **Tuesday May 3, 2016**

7:00 am      Breakfast

### **8:30 am      Ozone and Cardiovascular Effects: Where is "MOSES" Leading Us?**

Chairs: *David Christiani*, Harvard T. H. Chan School of Public Health and HEI Research Committee, and *Lianne Sheppard*, University of Washington–Seattle and HEI Review Committee

Many areas struggle to meet the ozone standard, and changing climate and emissions profiles for ozone precursors paint a complicated picture. HEI recently completed the Multicenter Ozone Study in Elderly Subjects (MOSES) of cardiovascular effects at low exposures of ozone. We will discuss the science behind the 2015 ozone regulations in the United States and the current knowledge base linking ozone to cardiovascular and respiratory effects, based on the results of MOSES and other human clinical studies. The session will conclude with comments from the MOSES Review Panel and the public.

- 8:30    Introduction  
*David Christiani*, Harvard T.H. Chan School of Public Health
- 8:40    The science behind the recent ozone standards  
*Molini Patel*, U.S. Environmental Protection Agency
- 9:10    Cardiovascular effects of ozone: evidence from clinical studies  
*Nicholas Mills*, University of Edinburgh, United Kingdom
- 9:40    Break
- 10:00    Cardiovascular effects at low ozone levels: results of the MOSES study  
*John Balmes*, University of California–San Francisco
- 10:50    Review Panel response on MOSES results and interpretation  
*James Merchant*, University of Iowa

11:10 General discussion

11:30 am Lunch

**12:30 pm Traffic and Health: Air Pollution, Noise, and Interactions with SES**

Chairs: *Barbara Hoffmann*, University of Düsseldorf, Germany, and *Jeffrey Brook*, Environment Canada, both of the HEI Research Committee

This session will explore important factors related to the design and interpretation of health studies of traffic-related air pollution. It is intended to build on the findings of HEI's previous work and to lay the groundwork for upcoming deliberations on research needs in this area. Speakers will discuss differences in traffic and vehicle mixes around the world and the complex interactions between socioeconomic status (SES) and traffic noise in health studies of traffic-related air pollution.

12:30 Motor vehicle emissions: world-wide achievements and challenges for exposure assessment  
*Michael Walsh*, International Council on Clean Transportation

1:00 The complex interactions between SES and traffic-related air pollution effects  
*Marie O'Neill*, University of Michigan

1:30 Is it traffic-related air pollution or traffic noise, or both?  
*Barbara Hoffmann*

2:00 Key policy questions on traffic and health  
*Chad Bailey*, U.S. Environmental Protection Agency

2:15 General Discussion

**2:30 pm Conference Adjourns**