Welcome

Workshop on New Science for Environmental Justice

October 20 - 21, 2022
The Health Effects Institute
Trusted Science – Cleaner Air – Better Health
www.healtheffects.org

• Over 40 years of Trusted Science
  – Joint Government/Industry Funding
  – Rigorous, Independent Science
  – Full Transparency

• Targeted Research and Reanalysis
  – Over 350 Studies on PM, ozone, diesel, air toxics, others
  – Exposure, Toxicology, Epidemiology, Accountability

• Scientific Synthesis/Review
  – E.g., The Health Effects of Exposure to Traffic

• Programs also in
  – Global Health
  – Energy

Welcome to the
Health Effects Institute
We provide high-quality, trusted science for cleaner air and better health. Read more about our research mission and unique model of equal partnership by government and industry.

> Learn more about HEI

WHAT’S NEW
> State of Global Air 2018: Over 7 Billion People Face Unsafe Air
> Webinar: Did power plant and motor vehicle controls improve air quality and health in Atlanta?
> Request for Qualifications and Proposal for Quality Assurance Oversight
> Update Winter 2018 now available
> New studies on health effects of traffic-related pollution
Rigorous strategic planning and science

Detailed 5-year Strategic Plan to answer key questions for sponsors, other stakeholders
Levels of benzene in an Industrial and Traffic Dominated Neighborhood
Levels of Ultrafine Particles in the Neighborhood Abutting the Peace Bridge

Figure 1. The study area comprised the Peace Bridge plaza and the three fixed sampling sites (GLC, Chapel, and School), as well as Bird Island Pier and the neighborhood of west Buffalo (boxed), where routes for mobile monitoring were located.
HEI Impact: Testing National Effects at Low Levels

• The Medicare Study
  • Conducted by Francesca Dominici and colleagues at Harvard
  • A study in 68.5 million older Americans
  • Annual exposures to PM$_{2.5}$, NO$_2$, O$_3$
  • Extensive statistical testing
Air Pollution Data

Requia WJ et al. 2020. An ensemble learning approach for estimating high spatiotemporal resolution of ground-level ozone in the contiguous United States. Environmental science & technology, 10.1021/acs.est.0c01791
Di Q et al. 2020. Assessing NO2 concentration and model uncertainty with high spatiotemporal resolution across the contiguous United States using ensemble model averaging. Environmental science & technology, 10.1021/acs.est.9b03358
A 10 units increase in PM2.5 is associated with a 7.3% increase in all cause mortality among older Americans. Black patients have a risk of death from PM2.5 exposure that is three times higher than the national average.
Newest Results (2022): Evidence Below the Current PM Standard

Current Annual NAAQS (12 µg/m³)

Three Pollutant Model (adjusting for NO₂, O₃)

By LISA FRIEDMAN
WASHINGTON — Older Americans who regularly breathe even low levels of pollution from smokestacks, automobile exhaust, wild fires and other sources face a greater chance of dying early, according to a major study released Wednesday.

The Health Effects Institute, a group that is funded by the Environmental Protection Agency as well as automakers and fossil fuel companies, examined health data from 60.5 million Medicare recipients across the United States. They found that the federal rules for what is considered safe levels of pollution have been slightly lower, as many as 140,000 deaths could have been prevented over the course of a decade.

Exposure to fine particulate matter has long been linked to respiratory illness and impaired cognitive development in children. The tiny particles can enter the lungs and bloodstream to affect the heart, increase the risk of heart attacks and trigger bronchial asthma and other mental illnesses. Earlier research has found that exposure to particulate matter contributed to about 28,000 deaths a year.

The new study is the first in the United States to document deadly effects of the particulate matter known as PM 2.5 (because its width is 2.5 microns or less) on heart attacks and strokes and severe with little industry.

“We found a risk of dying early from exposure to air pollution, even at very low levels of air pollution across the United States,” said Daniel S. Greenbaum, president of the Health Effects Institute.

The Biden administration is considering whether to reinstate the na...
Testing Air Pollution Solutions: The California Goods Movement Cleanup

Requirements for Cleaner Diesel in Los Angeles and the Bay Area
First Question: Did Exposure Improve?

- Tested whether air pollution exposure went down more in communities near high goods movement traffic
- Documented improvements in nitrogen dioxide (NO2) exposure for those communities
Second Question: Did Health improve?

Emergency room visits for MediCal patients improved faster in goods movement corridors

Commentary Figure 2(B), from Investigator Report Figure 5
Our Goals

• Understand EJ issues for urban communities, while also incorporating experiences from tribal communities.

• Conduct a scoping workshop to:
  – Gather information on research gaps,
  – Identify conditions for effective EJ research and solution-oriented efforts, and
  – Showcase experiences from communities and researchers that highlight both approaches that have worked and some of the challenges that have been encountered.

• After the workshop, take action to identify research needs that HEI could support through its application and funding process.
# HEI Workshop Planning Committee and Staff

## Research and Planning Committee Members
- Jeff Brook, Co-Chair*, WPC
- Ana Navas-Acien, Co-Chair WPC
- Christina Fuller WPC
- Heather Holmes*
- Ana Rule*, WPC
- Ivan Rusyn*, WPC

* HEI Research Committee Member  
WPC Workshop Planning Committee Member

## HEI Directors
- Dan Greenbaum  
- Robert O’Keefe  
- Ellen Mantus  
- Annemoon van Erp

## HEI Staff
- Elise Elliott  
- Martha Ondras  
- Palak Balyan  
- Anna Rosofsky  
- Allison Patton
Before we begin

• Sessions will be recorded only for internal note-taking purposes. A written summary of proceedings will be published on HEI’s website.

• There will be time for questions and discussion after each presentation. Please come to the microphone to ask a question if you are able. Otherwise, raise your hand to indicate you have a question, and the staff will bring a microphone to you.

• If you experience any difficulties, please speak to an HEI staff or committee member.

• If you shared materials in the pre-workshop survey, thank you!
Guidelines for Meeting Conduct

• We will try to start and end on time.
• Feel free to step out if necessary.
• Manage electronic devices. It’s okay to take notes on your phone or laptop.
• Allow one person to speak at a time while you actively listen.
• Ask the speaker to clarify if you are uncertain about what was said.
• Be concise when speaking.
• Express ideas directly, compassionately, and tactfully.
• Disagree with ideas, not people.
# Workshop Agenda

## Day One

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Welcome and Opening Remarks</td>
</tr>
<tr>
<td>9:30</td>
<td>Keynote Speakers</td>
</tr>
<tr>
<td>10:45</td>
<td>Break</td>
</tr>
</tbody>
</table>
| 11:00 am | Breakout Session 1 –  
|         | “Identifying EJ Priorities and Concerns”                               |
| 12:30  | Lunch                                                                  |
| 1:45   | Discussion Recap                                                       |
| 2:15   | Panel Discussion –  
|         | “Barriers to and Opportunities for Effective EJ Research”             |
| 3:15   | Break                                                                  |
| 3:30   | Breakout Session 2 –  
|         | “Identifying EJ Priorities by Research Topic”                          |
| 4:30   | Discussion Recap                                                       |
| 5:00   | Networking Session                                                     |
| 6:30   | Workshop Dinner                                                        |

## Day Two

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Summary of Day 1 &amp; Goals for Day 2</td>
</tr>
<tr>
<td>9:15</td>
<td>Case Studies – Successful research community partnerships for EJ research</td>
</tr>
<tr>
<td>10:30</td>
<td>Break</td>
</tr>
<tr>
<td>10:45</td>
<td>Breakout Session Round 1 - “Identifying Solutions and Promoting Future Collaborations”</td>
</tr>
<tr>
<td>11:45</td>
<td>Discussion Recap</td>
</tr>
<tr>
<td>12:15</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:15</td>
<td>Breakout Session Round 2 - “Identifying Solutions and Promoting Future Collaborations”</td>
</tr>
<tr>
<td>2:15</td>
<td>Discussion Recap</td>
</tr>
<tr>
<td>2:45</td>
<td>Closing Remarks</td>
</tr>
</tbody>
</table>