Webinar for Potential Applicants to RFA 23-1: Traffic-related Air Pollution and Health

Health Effects Institute

February 2, 2023

The meeting will begin shortly.

A few logistics before we start:

If you experience logistical difficulties, please use the **Chat** box or email Quoc Pham: qpham@healtheffects.org

Please put questions about the RFA or application process in the **Q&A** box

The recording is for internal purposes only

After the webinar, HEI will post the webinar slides and all questions and answers to the HEI website

HEI

Today's Agenda

Introduction to HEI

Overview of the RFA and Expectations for Research Proposals

Question and Answer Session

Introduction to HEI

The Health Effects Institute

An independent, nonprofit corporation chartered to produce *policy-relevant, high-quality,* and *impartial science*

Funded jointly by government and the worldwide motor vehicle industry and, occasionally, private foundations

Funds research that is selected, conducted, overseen, and reviewed independently of HEI's sponsors

Does not take policy positions

Trusted Science • *Cleaner Air* • *Better Health*

www.healtheffects.org

RESEARCH REPORT

Number 211
January 2022

Assessing Adverse Health Effects of Long-Term Exposure to Low Levels of Ambient Air Pollution: Implementation of Causal Inference Methods

Francesca Dominici, Antonella Zanobetti, Joel Schwartz, Danielle Braun, Ben Sabath, and Xiao Wu

Walter A. Rosenblith New Investigator Award
RESEARCH REPORT

Number 209
February 2022

Associations of Air Pollution on the Brain in Children: A Brain Imaging Study

Mònica Guxens, Małgorzata J. Lubczyńska, Laura Pérez-Crespo, Ryan L. Muetzel, Hanan El Marroun, Xavier Basagaña, Gerard Hoek, Henning Tiemeier

RESEARCH REPORT

Number 208
September 2021

Mortality and Morbidity Effects of Long-Term Exposure to Low-Level $PM_{2.5}$, BC, NO_2, and O_3: An Analysis of European Cohorts in the ELAPSE Project

Bert Brunekreef, Maciej Strak, Jie Chen, Zorana J. Andersen, Richard Atkinson, Mariska Bauwelinck, Tom Bellander, Marie-Christine Boutron, Jørgen Brandt, Iain Carey, Giulia Cesaroni, Francesco Forastiere, Daniela Fecht, John Gulliver, Ole Hertel, Barbara Hoffmann, Kees de Hoogh, Danny Houthuijs, Ulla Hvidtfeldt, Nicole Janssen, Jeanette Jørgensen, Klea Katsouyanni, Matthias Ketzel, Jochem Klompmaker, Norun Hjertager Krog, Shuo Liu, Petter Ljungman, Amar Mehta, Gabriele Nagel, Bente Oftedal, Göran Pershagen, Annette Peters, Ole Raaschou-Nielsen, Matteo Renzi, Sophia Rodopoulou, Evi Samoli, Per Schwarze, Torben Sigsgaard, Massimo Stafoggia, Danielle Vienneau, Gudrun Weinmayr, Kathrin Wolf, and Gerard Hoek

Ensuring the Quality of Research Funded by HEI

David A. Savitz, Chair

Professor of Epidemiology, School of Public Health, and Professor of Obstetrics and Gynecology, Alpert Medical School, Brown University

Jeffrey R. Brook

Assistant Professor, Occupational & Environmental Health Division, Dalla Lana School of Public Health, University of Toronto, Canada

Christina H. Fuller

Associate Professor, School of Environmental, Civil, Agricultural and Mechanical Engineering, University of Georgia College of Engineering

Amy H. Herring

Sara & Charles Ayres Professor of Statistical Science and Global Health, Duke University

Heather A. Holmes

Associate Professor, Department of Chemical Engineering, University of Utah

Neil Pearce

Professor of Epidemiology and Biostatistics, London School of Hygiene and Tropical Medicine

Ana M. Rule

Assistant Professor and Director, Environmental Exposure Assessment Laboratories, Department of Environmental Health and Engineering, Johns Hopkins School of Public Health

Ivan Rusyn

Professor, Department of Veterinary Integrative Biosciences, Texas A&M University

Evangelia (Evi) Samoli

Associate Professor of Epidemiology and Medical Statistics, Department of Hygiene, Epidemiology and Medical Statistics, School of Medicine, National and Kapodistrian University of Athens, Greece

Neeta Thakur

Associate Professor of Medicine, University of California, San Francisco

Gregory Wellenius

Professor, Department of Environmental Health, Boston University School of Public Health

HEI staff work with the Research Committee on:

- Strategic planning
- Defining research needs in Requests for Applications (RFAs)
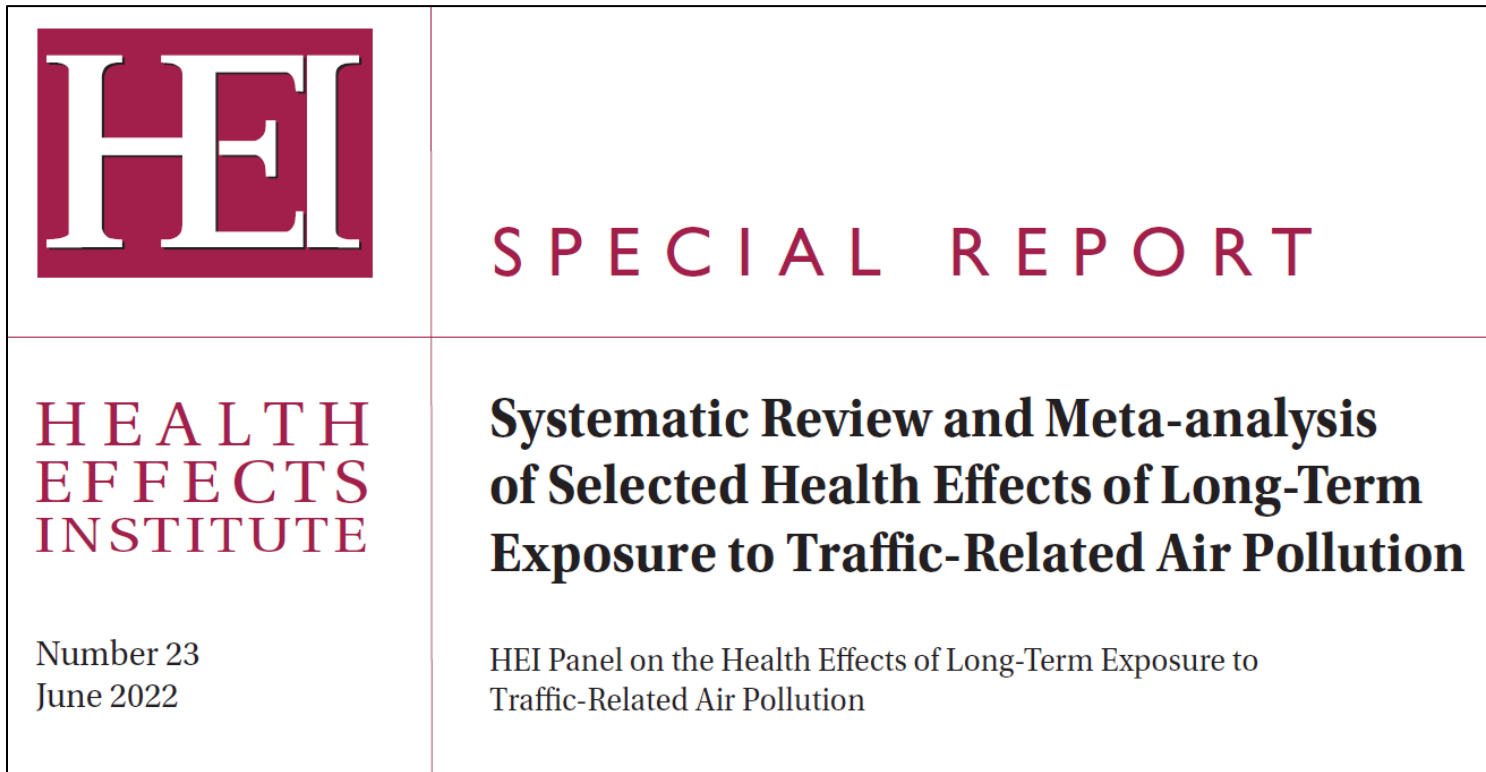- Selecting and overseeing funded studies

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Overview of the RFA and Expectations for Research Proposals

The Development of RFA 23-1 was informed by HEI's New Traffic Review

SPECIAL REPORT

HEALTH EFFECTS INSTITUTE

Number 23
June 2022

Systematic Review and Meta-analysis of Selected Health Effects of Long-Term Exposure to Traffic-Related Air Pollution

HEI Panel on the Health Effects of Long-Term Exposure to Traffic-Related Air Pollution

https://www.healtheffects.org/publication/systematic-review-and-meta-analysis-selected-health-effects-long-term-exposure-traffic

CONTENTS

Methodologic Features of the Traffic Review

The full chain of events linking TRAP to health effects. Source: Center for Advancing Research in Transportation Emissions, Energy and Health (CARTEEH), available from: https://www.carteeh.org/.

Conducted largest effort of this type to date.

- ✓ Evaluates the epidemiologic literature only.

- ✓ Focuses on a selected set of health outcomes chosen *a priori,* including mortality, cardiovascular and respiratory morbidity and birth outcomes.

Applies a new exposure framework.

- ✓ Considers only long-term exposure to traffic-related air pollution.

- ✓ Considers exposure contrasts in near-roadway and neighborhood environments.

Assesses confidence in the evidence for an association.

- ✓ 2 complementary methods with ratings of very low, low, moderate, or high for traffic-related air pollution mixture, not individual pollutants.
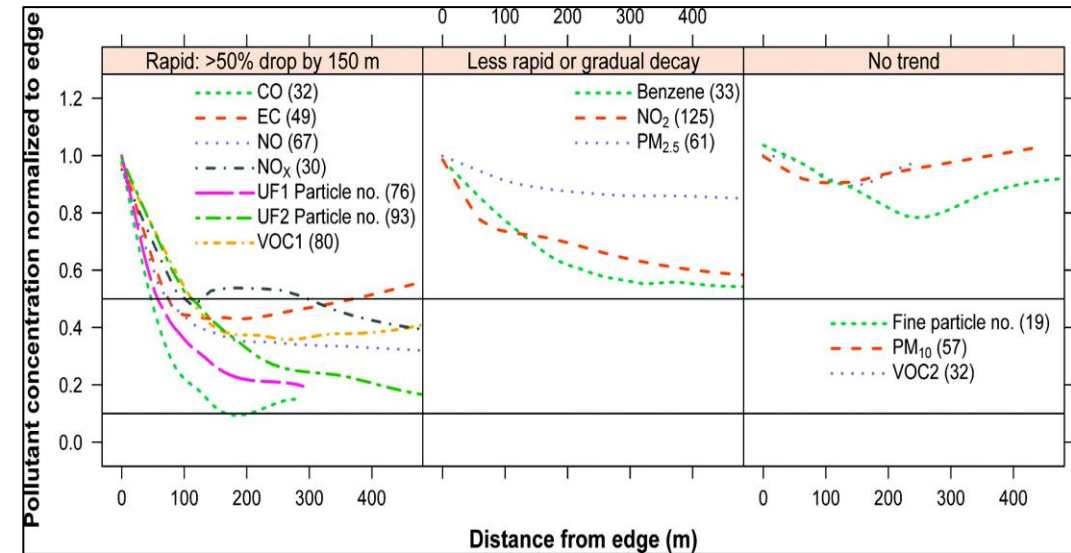
Some Observations

✓ The majority of studies were done in Europe and North America

✓ Most of the studies were published after 2008 – thus relatively recent

✓ Nitrogen dioxide (NO_2) was the traffic-related exposure indicator that was most widely used, followed by elemental carbon (EC) and fine particulate matter ($PM_{2.5}$)

✓ Exposure assessment of traffic-related air pollution is challenging
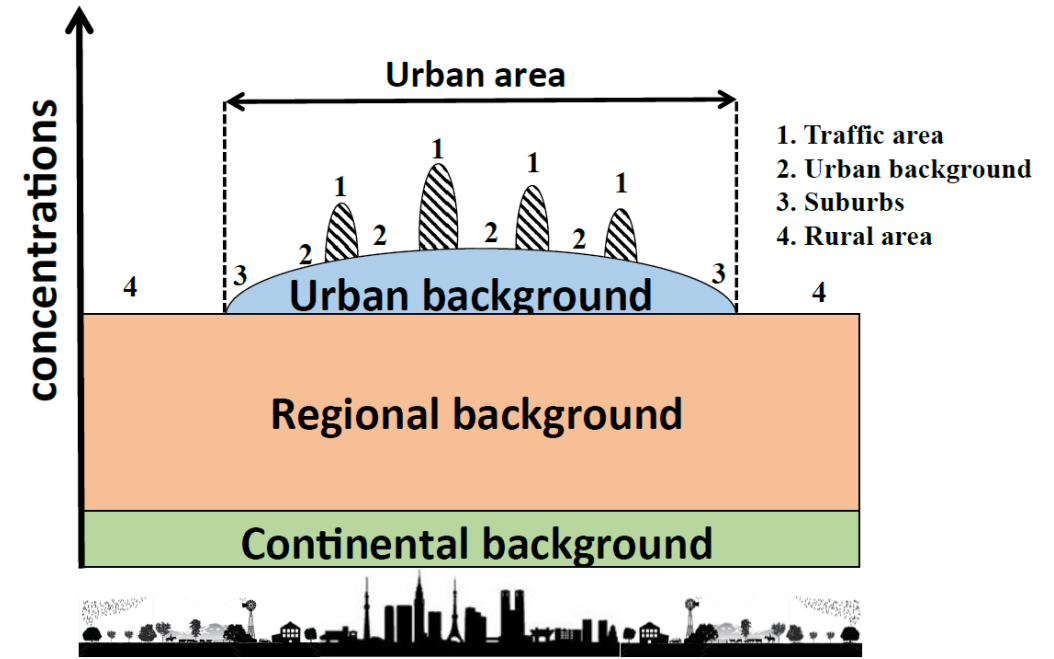
Source: Fuzzi et al. 2015.

Source: Karner et al. 2010.

Some Observations

✓ The transportation and mobility landscape is changing

✓ There is a complex interplay among factors that influence traffic-related air pollution and health

✓ There is a need for traffic-related air pollution and health studies in low- and middle-income countries

✓ There is a role for accountability studies and burden and health impact assessments
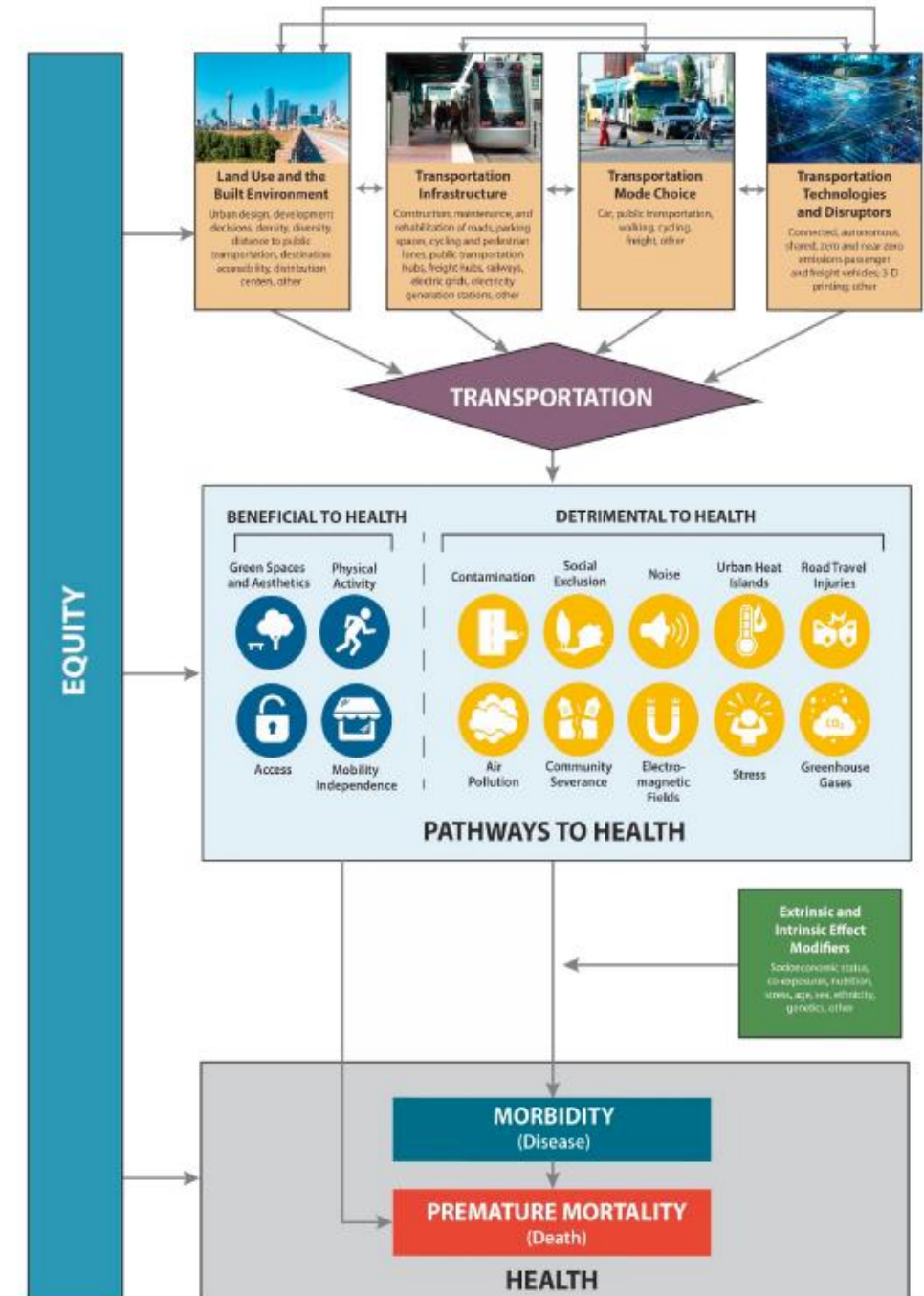
Glazener et al. 2021. Fourteen pathways between urban transportation and health: A conceptual model and literature review. Journal of Transport & Health

Overall Objectives of RFA 23-1

HEI is seeking to fund studies to assess health effects of <u>long-term exposure</u> to <u>traffic-related air pollution</u>. Studies should propose novel or improved methods and approaches to evaluate exposure to and health effects of traffic-related air pollutants as technologies and fuels change, the fleet turns over, mobility transforms, and electrification makes greater inroads.

Specific Objectives of RFA 23-1

1. In the proposed health studies, develop, validate, and apply novel or improved exposure assessment methods suitable for estimating exposures to traffic-related air pollutants.
2. Evaluate the effectiveness of key measures to reduce traffic-related air pollution and improve public health, as well as to assess the health benefits of measures designed to mitigate traffic or achieve other policy objectives.
3. Estimate the impacts on urban air quality and health of various new transportation and mobility scenarios, including a baseline (status quo or "business as usual") scenario.
4. Investigate health effects of long-term exposure to traffic-related air pollution in understudied low- and middle-income countries.

HEI seeks to fund studies that can accomplish at least one of the objectives listed.
Note that in meeting the first three objectives, investigators should consider whether their work can effectively include effects in marginalized communities in high-income countries.

Key Study Design Features

Study populations and locations
- Urban populations in all regions of the world

Exposure assessment
- Long-term exposure, including current or more recent exposure
- Multiple pollutants as indicators of traffic-related air pollution
- Include $PM_{2.5}$ mass

Health outcomes
- Justify the selection of health outcomes

Explore the role of other environmental, social, and behavioral factors

Strong statistical plan

Criteria for Evaluating Research Applications

Relevance to the objectives of the RFA

Scientific merit

Experience, competence, and diversity of the research team

Adequacy of facilities

Reasonableness of the proposed budget

Research Team

Principal Investigators
  Researchers with advanced degrees (PhD, MD, or equivalent)
  Affiliated with an eligible established research organization in a position that allows grant submissions

HEI will consider the characteristics of the entire proposed study team, including:
  Past research and publication history
  Access to resources needed to complete the research
  Include researchers from countries where the analysis is proposed, especially if the work is in understudied low- and middle-income countries
  We encourage diverse research teams (we adopted the National Institute of Health definition on populations underrepresented in the scientific workforce)

Eligible Organizations

Lead organization must be an academic or independent, non-profit, free standing research institution

Scientists from non-regulatory government agencies can participate but not lead a study

For-profit companies can participate as consultants

Budget

Overall, a total of $5 million will be available for this RFA

HEI expects to fund a small number of studies (2 to 3 years in duration)

- Indirect costs are capped at 30% (cannot be waived)
- Includes preparation of the final report

Investigator Commitments

HEI issues cost-reimbursement contracts (not grants)

Guidelines for Quality Assurance / Quality Control and data sharing

Biannual progress reports, webinars and site visits to ensure high quality

Present a poster at HEI's Annual Conference

Changes to proposed work or budget require Research Committee approval to ensure the study stays true to its original goals and the RFA

PLEASE REVIEW HEI'S PROCESS BEFORE APPLYING:
https://www.healtheffects.org/research/investigators/commitments

Final reporting requirements

Important Dates

March 15, 2023: Preliminary applications due

March - April 2023: HEI Research Committee reviews preliminary applications

End of April: Feedback to Investigators

July 7, 2023: Invited full applications due

August 2023: External review by an ad hoc panel

**September - October 2023:** HEI Research Committee reviews full applications

October 31, 2023: Winner(s) notified

Fall 2023 and Early 2024: HEI Board approval, IRB approval and contract negotiations

Spring 2024: Studies begin

Question & Answer Period

Please type your questions about the RFA and application process via the Q&A function. If someone else has already typed the same question that you have, please upvote that person's question.
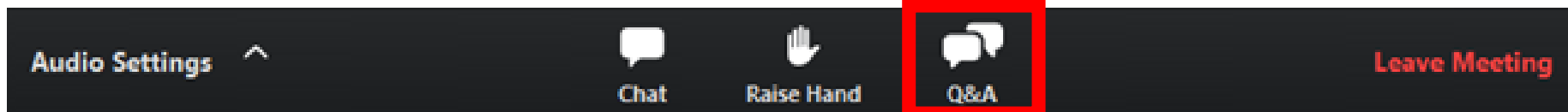
If you have additional questions, please contact Hanna Boogaard: jboogaard@healtheffects.org

For general questions related to the HEI application process, please visit: https://www.healtheffects.org/faqs