The New HEI Traffic and Health Studies

Hanna Boogaard, Health Effects Institute

HEI Annual Conference, April 29 - May 1, 2018



Overall Objective RFA 17-1

Fund studies that would consider spatially correlated factors that may either confound or modify the health effects of traffic-related air pollution, most notably, traffic noise, socioeconomic status (SES), and factors related to the built environment, such as presence of green space.



RFA 17-1

Assessing Adverse Health Effects of Exposure to Traffic-related Air Pollution, Noise, and their Interactions with Socio-Economic Status

- Held a workshop to develop and refine research questions around health effects of traffic-related air pollution – May 2016
- Developed and issued Request for Applications (RFA)
 17-1 June 2016 to January 2017
- Received 51 Preliminary Applications March 2017
- Requested and received 11 full applications July 2017
- Funded three applications October 2017



Principal Investigators

Payam Dadvand and Jordi Sunyer

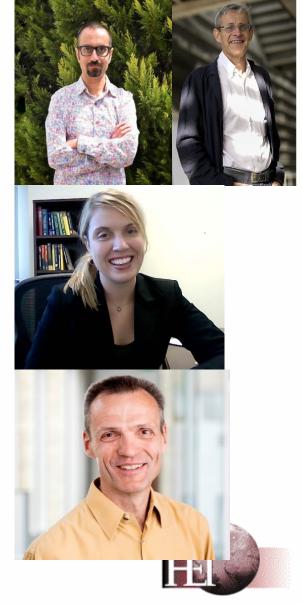
Barcelona Institute for Global Health (ISGlobal)

Meredith Franklin

University of Southern California (USC)

Ole Raaschou-Nielsen

Danish Cancer Society Research Center (DCRC)



Teams

Payam Dadvand and Jordi Sunyer

Mark Nieuwenhuijsen, Xavier Basagaña, Cathryn Tonne, Maria Foraster (ISGlobal) Maria Dolores Gómez-Roig, Edurne Mazarico (BCNatal)

Jose Lao (Barcelona Regional)

Xavier Querol, Teresa Moreno (Institute of Environmental Assessment and Water Research [CSIC-IDAEA]);

Michael Jerrett, Joel Schwartz, Tim Nawrot (advisory board)

Meredith Franklin

Scott Fruin, Rob McConnell, Robert Urmann, Steve Howland (USC) Martin Shafer (Wisconsin State Laboratory of Hygiene)

Ole Raaschou-Nielsen

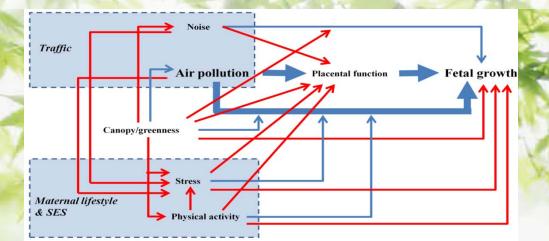
Mette Sørensen, Ulla Hvidtfeldt, Nick Martinussen (DCRC) Matthias Ketzel, Jørgen Brandt, Ulas Im, Ole Hertel, Jesper Christensen (Aarhus University)

Theis Lange, Henrik Brønnum-Hansen (Copenhagen University) Thomas Münzel (Johannes Gutenberg University)



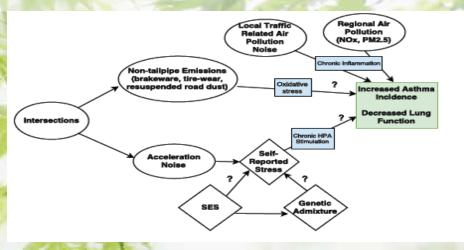
Dadvand - Sunyer study

- A new cohort of healthy pregnant women in Barcelona, Spain (N=1200).
- They will assess birth weight, fetal growth trajectories, and placental function for each pregnancy.
- Exposure models at very fine spatial resolution, noise, time-activity data, and personal exposure measurements.



Franklin study

- They will build on the Children's Health Study (CHS) in Southern California (N~5000).
- They have longitudinal data on asthma and lung function.
- They will develop an exposure model for non-tailpipe PM metals using compositional data from existing PM filters and data on intersections and road slopes.



Raaschou-Nielsen study

- They will make use of three existing cohorts in Denmark including an administrative cohort (N=5.5 million) and the Diet Cancer & Health next generation cohort (N=50,000).
- They will assess myocardial infarction, stroke and diabetes; cardiovascular biomarkers in the Next Gen cohort.

Exposure models at fine spatial resolution, inclusion of

UFP and non-tailpipe particulate matter, noise.

EPIDEMIOLOGY

When an Entire Country Is a Cohort

Denmark has gathered more data on its citizens than any other country. Now scientists are pushing to make this vast array of statistics even more useful

For years, any woman who got an abortion had to accept more than the loss of her fetus: For some unknown reason, she also faced an elevated risk for breast cancer. At least that was what several small case-control studies had suggested before Mads Melbye, an epidemiologist at the Statens Serum Institute in Copenhagen, undertook the largest effort ever to explore the link. He and his colleagues obtained records on 400,000 women in Denmark's national Abortion Register, then checked how many of the same women were listed in the Danish Cancer Register. Their foray into the two databases led to a surprising result: As they reported in The ew Envland Journal of Medicine in 1997

digit personal identification number, called the CPR, that follows each Dane from cradle to grave. According to Melbye, "our registers allow for instant, large cohort studies that are impossible in most countries."



by thos data Der mar its p

to r con den indi

