

Faculty Focus: David Rich, Sc.D, M.P.H.

What does your research focus on?

I am an environmental epidemiologist whose primary research interests are the reproductive and cardiorespiratory health effects of ambient air pollution and other environmental toxicants, with particular interest in maternal air pollution exposure during pregnancy, effects on placental development and function, metabolic dysfunction, systemic inflammation, and any resulting deficiencies in fetal growth and development. Current work on these topics is underway in cohort studies in Rochester, NY and Pittsburgh, PA. My research team and I also conduct accountability research assessing if and to what degree air quality regulatory policies and actions have reduced air pollution emissions, reduced community level air pollutant concentrations, and benefited the health of the affected community. Accountability studies are underway now examining whether motor vehicle and electricity generating unit policies in New York State, and separately in New York City, Atlanta, and Los Angeles affected pollutant emissions, concentrations, and particle composition, as well as the rates of cardiovascular, respiratory, and respiratory infectious disease hospitalizations, and ST-elevation myocardial infarction.



Why did you choose to do research in public and community health?

Environmental exposures are prevalent in US and global communities, and the majority of these populations have such exposures (e.g., everyone has some exposure to ambient air pollution each day, and thus may have a health impact associated with those air pollution exposures). These are modifiable risk factors, and thus assessing public health effects of environmental exposures provides information to allow targeted remediation, interventions, or regulatory policies to reduce such exposures or block or minimize health effects resulting from them. Further, assessing the effect of such regulatory policies on community health is another important public health tool. All of these factors drove me to conduct research in environmental public health.

What do you enjoy most about University of Rochester?

The University of Rochester has long been a leader in air pollution health effect research, and with collaborators in fields complimentary to my epidemiology training (e.g., in clinical medicine, biostatistics, air pollution exposure science, behavioral science, and health policy), the university provides numerous opportunities for broad based, impactful, and efficient research collaborations. Further, the diversity in graduate and undergraduate programs, and my teaching and mentoring interactions with students in Public Health Sciences graduate programs, and students in other departments across the university, contribute to my own continued learning and growth of my research program.

What opportunities are there for students to engage in your projects, both current and future?

Students with training in biostatistical/epidemiology methods and statistical programming are always needed for research and specifically for the research projects described above. Students can, with direction from study investigators, conduct planned statistical analyses and draft and submit manuscripts for publications. If you are interested in air pollution epidemiology, and specifically in conducting these statistical analyses and drafting publishable papers, please email me to set up a time to discuss it!