

Toward Participatory Air Pollution Exposure Assessment in a Goods Movement Community

Michelle C. Kondo, PhD¹, Chris Mizes², John Lee, MPH², Jacqueline McGady-Saier³, Lisa O'Malley³, Ariel Diliberto⁴, Igor Burstyn, PhD⁵

(1) University of Pennsylvania Department of Epidemiology & Biostatistics, and United States Forest Service; (2) Clean Air Council; (3) Port Richmond resident; (4) New Kensington Community Development Corporation; (5) School of Public Health, Drexel University

What Is the Purpose of This Study/Review?

- To use the community-based participatory research model to develop collaborative relationships with residents and community organizations, and involve residents in planning for and conducting air pollution research.
- To assess community concern regarding environmental health and truck traffic using interviews, meetings, and a Photovoice exercise.
- To develop and pilot protocol to involve community residents in conducting personal measurements of PM_{2.5} in the first-ever neighborhood- or personal-scale PM_{2.5} monitoring project in Philadelphia.
- To pilot means of conveying study results to the residents and community researchers.

What Is the Problem?

- Air pollution from traffic of diesel trucks travelling to and from port facilities is a potential environmental health threat in areas of Philadelphia such as the Port Richmond neighborhood.
- Current air pollution monitoring conducted by the City of Philadelphia has limited capability to assess neighborhood- or personal-level exposures to this pollution.

What Are the Findings?

- Community residents are concerned about air pollution from traffic and other sources, roadway safety hazards, and community health problems.
- Smoking had the most pronounced effect on individuals' air pollution exposure.
- Personal air pollution exposure levels were not related to more general pollution levels reported from monitoring stations in Philadelphia.
- Participation in personal air pollution monitoring and photography exercises helped to increase awareness of diesel emissions throughout the neighborhood and develop priorities for action.
- Participatory methods are appropriate to involve lay persons in personal air pollution monitoring.

Who Should Care Most?

- Port communities, and other residential areas host to heavy vehicle and truck traffic.
- Community-based organizations and community health centers.
- Medical institutions and other health care providers.

Recommendations for Action

- Improve signage for truck drivers throughout the neighborhood (especially at the base of an exit ramp from I-95) to direct trucks away from neighborhood collector streets and toward major arterials.
- Improve signage and enforcement of anti-idling ordinances.
- Conduct more personal- and local-level air pollution monitoring.