Health Data for New York City (HD4NYC): A collaborative research model to advance policy-relevant environmental health research

P. Sheffield\textsuperscript{1}, D. Brahmbhatt\textsuperscript{2}, S. Khan\textsuperscript{3}, S. Bajwa\textsuperscript{2}, S. Li\textsuperscript{4}, J. Stingone\textsuperscript{5}, S. Lovinsky-Desir\textsuperscript{6}; \textsuperscript{1}Icahn SOM at Mt Sinai, New York, NY, \textsuperscript{2}NYC Department of Health and Mental Hygiene, New York, NY, \textsuperscript{3}City University of New York Institute for State and Local Governance, New York, NY, \textsuperscript{4}City University of New York, New York, NY, \textsuperscript{5}Columbia University Mailman School of Public Health, New York, NY, \textsuperscript{6}Columbia University Irving Medical Center, New York, NY.

**COLLABORATION:** In 2019, the New York City (NYC) Department of Health and Mental Hygiene and the New York Academy of Medicine launched Health Data for NYC (HD4NYC), a research platform focused on improving health equity in NYC. HD4NYC utilizes a working group model to promote data sharing, advance actionable policy-relevant, equity-focused research, and connect diverse early-career academic and Health Department researchers with senior mentorship. The partnership involves over 30 partners from 9 NYC-area academic institutions (Figure 1).

**EXAMPLE OF COLLABORATIVE RESEARCH**

**OBJECTIVE:** To explore large-scale social determinants of health with an equity lens by combining individual level survey data with neighborhood-level environmental data.

**METHODS:** The HD4NYC Environmental Health subgroup utilized data from NYC KIDS 2017, a DOHMH-led cross-sectional health survey of over 7,500 households with children 0-13 years. Environmental factors within the NYC KIDS survey included indoor and outdoor exposures, such as housing quality, prevalence of indoor pests, and perceptions of neighborhood traffic. Data were merged with neighborhood-level housing and sociodemographic data from the American Community Survey (ACS) including zip code level education, race/ethnicity, income disparities, and gentrification and structural racism metrics. Forty-eight neighborhood and housing environment variables were analyzed using machine learning methods (e.g. random forest) to rank the most salient exposures (Figure 2).

**RESULTS AND FUTURE DIRECTIONS:** Three clusters were identified based on distinguishing features of the neighborhood and housing environment in NYC (Figure 3). Future analysis will examine associations between neighborhood/housing environment clusters and childhood asthma outcomes, assessed in NYC KIDS.

**Figure 1:** Institutions involved in HD4NYC collaboration

All partners benefit: academics gain facilitated access to robust, local health data; the health department gains access to additional expertise and person-power for innovative research; and all receive support and mentorship. Moreover, this collaboration helps achieve health department priorities for producing actionable policy-relevant research promoting health equity and serving as a model for future national endeavors.

**Figure 3:** Distribution of 3 distinct neighborhood/housing environment clusters based on top 3 features of importance identified in clustering analysis (see figure 2).

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