Place-Based Targeting: Using a Novel Method To Identify Disproportionalities in Causes and Effects

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Background and Objectives: A small but striking body of literature suggests that the majority of human health risk from industrial sources is produced by a small number of facilities that emit disproportionately high levels of toxic substances. Such emissions often disproportionately affect environmental justice (EJ) communities. Using an integrated framework, this study applies a novel analytic approach to identify priority EJ communities and connect them with the industrial polluters responsible for excess health risk. Such knowledge allows regulators to more selectively target polluters for enforcement, thereby reducing health risk more efficiently and effectively.

Methodology: Using EJSEAT, RSEI, and Census data, this project spatially links enforcement data, relative health risk, and demographics at the census tract-level to identify industrial polluters that disproportionately contribute to health risk in Milwaukee, Wisconsin's EJ communities. It couples disproportionality measurements from two perspectives: the health risk *borne* by communities and the harms *produced* by polluters.

Results: Results reveal empirically that certain EJ communities are disproportionately bearing the region's greatest relative health risk. Striking variations in the production of risk also exist between polluters. Of the area's 299 facilities, 30 (or 10%) contribute 90 percent of all relative health risk.

Conclusions: The greatest gains in EJ and human health protection may be garnered by directing enforcement efforts at disproportionate polluters within heavily impacted EJ areas rather than by targeting full industrial sectors. If environmental regulation can be designed to effectively target the major contributors to cumulative health risk and ecological damage, it will maximize risk reduction at a lower cost.