Multiple Impacts and Health Disparities in Port Arthur, TX: A Community Profile of Cumulative Risk

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Background: Port Arthur, in the upper Texas Gulf Coast, ranks in the top 10 percent of polluted U.S. communities in terms of: (1) chemical releases, (2) cancer risk, (3) recognized/suspected carcinogens, (4) developmental toxicants, and (5) recognized reproductive toxicants. West Port Arthur is 91 percent African American, with 23 percent of the households having incomes equal to or less than poverty level and unemployment at 14 percent. In conjunction with the U.S. Environmental Protection Agency's (EPA) Environmental Showcase Community Program, CIDA, the University of Texas Medical Branch's Center to Eliminate Health Disparities, and the National Institute of Environmental Health Sciences' Center in Environmental Toxicology have initiated a cumulative risk-health disparities study/action project.

Methods: Geographic Information System correlation of survey census data; aggregated TDSHS health data; TRI/Texas Commission on Environmental Quality monitoring data; Occupational Safety and Health Administration (OSHA) safety data, documentation of industrial accidents, explosions, flaring, integrated with results of community symptom surveys, community interviews, focus groups, and arts-based popular education/communication interventions.

Results: Port Arthur shows a wide-ranging cumulative risk burden: (1) residential neighborhoods proximate to a petrochemical complex; (2) high HAPs emissions; (3) frequent industrial upsets, flaring, explosions/fires; (4) diesel particulates from transport; (5) absence of local health facilities; (6) lack of neighborhood business/accessible county/city social services; (7) neighborhood school closures; (8) high rates of asthma, respiratory distress, cancer, skin irritations; (9) significant impacts on vulnerable segments of the population; and (10) significant impacts by Hurricanes Rita and Ike.

Conclusion: Results show that west Port Arthur is disproportionately impacted by multiple stressors and health disparities/significant cumulative risk burdens. Targeted ambient monitoring and biomarker studies are needed to establish exposure levels/health effects linkage; use of EPA environmental justice SEAT, Healthy Development Measurement Tool, National Oceanic and Atmospheric Administration community resiliency index to clarify relationship of environmental factors to health disparities and guide green development; intensive outreach/education to increase environmental health literacy and promote neighborhood engagement/empowerment in development, climate disaster preparedness, and environmental justice advocacy.