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The Road Towards Environmental Justice From a Multifaceted Lens

Editor's Note: NEHA strives to provide up-to-date and relevant information on environmental health and to build partnerships in the profession. In pursuit of these goals, we feature a column from the Environmental Health Services Branch (EHSB) of the Centers for Disease Control and Prevention (CDC) in every issue of the *Journal*.

In this column, EHSB and guest authors from across CDC will highlight a variety of concerns, opportunities, challenges, and successes that we all share in environmental public health. EHSB's objective is to strengthen the role of state, local, tribal, and national environmental health programs and professionals to anticipate, identify, and respond to adverse environmental exposures and the consequences of these exposures for human health.

The conclusions in this article are those of the author(s) and do not necessarily represent the views of CDC.

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Social Determinants of Health and Environmental Justice

The intersection of social justice and environmental stewardship has become a catalyst for environmental justice (EJ). Economic, social, and cultural factors impact health outcomes and the exposure to environmental hazards. Housing deficiencies, exposure to pollutants, and other environmental risks are distributed unequally by race and socioeconomic status. Although no individual is exempt from environmental exposures, low-income and minority populations are more likely to live in counties

with particulate matter and ozone levels that exceed air quality standards. They are more likely to live in older homes and impoverished areas and have the highest odds of living in inadequate housing that contains toxic substances (Centers for Disease Control and Prevention [CDC], 2014a). Populations more likely to be affected by environmental degradation are also more likely to be disproportionately afflicted with chronic diseases, including asthma, obesity, and cancer (CDC, 2014b).

EJ, which is a paradigm that has become a major part of the environmental discourse,

works to address and reduce the imbalance of exposure to environmental hazards and the disparate aftereffects. EJ has a goal to ensure fair treatment and to ensure that no individual—irrespective of race, color, culture, national origin, income, and educational level—has an unequal share of harmful environmental exposures (U.S. Environmental Protection Agency, 2014). The EJ framework serves as a conduit for everyone to be part of a democratic decision making process. A mechanism for addressing issues of environmental hazards as a result of concentrated poverty and geographical inequities, the narrative of EJ has allowed us to view environmental disparities and quality of life issues through a multidimensional lens.

A Multifaceted Approach

The Centers for Disease Control and Prevention's (CDC's) National Center for Environmental Health and Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) support EJ and continue to address environmental health-related disparities through tools, collaborations, and public health programs (see Tables 1 and 2). In essence, as federal agencies have been called to address these issues, an increasing utilization of methods beyond traditional public health interventions has occurred (Executive Order No. 12898, 1994). The multiple elements that comprise EJ compel us to confront inequalities through a multidimensional lens. For example, facets of EJ include accessibility to nutritional food and health care, safe and affordable transportation and housing, politi-

TABLE 1

National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) Environmental Justice Tools for the Public

Tool	Web Site	Description
Community environmental health presentations	www.atsdr.cdc.gov/emes/public/health_presentations.html	Information about specific types of exposures to hazardous substances, exposure routes and pathways, health effects, and how to prevent and minimize exposures.
Environmental health WebMaps	www.atsdr.cdc.gov/webmaps/index.asp	Interactive map that displays environmental health information from NCEH/ATSDR, NCEH/ATSDR-funded programs, and other federal and state agencies.
Hazardous waste sites	www.atsdr.cdc.gov/hazardouswastesites.html	Information about current activities at focus waste sites, including public health assessments and lists of sites by state, by contaminant, or by site ownership.
Healthy community design tool kit	www.cdc.gov/healthyplaces/toolkit/default.htm	Tool kit to help planners, public health professionals, and the general public include health in the community planning process.
Protocol for Assessing Community Excellence in Environmental Health (PACE EH)	www.cdc.gov/nceh/ehs/CEHA/PACE_EH.htm	Methodology to guide communities and local health officials in conducting community-based environmental health assessments.
Toxic substances portal	www.atsdr.cdc.gov/substances/index.asp	Interface to guide users to information about specific toxic substances.
ToxFAQs™	www.atsdr.cdc.gov/toxfaqs/index.asp	Answers to the most frequently asked questions about exposure to hazardous substances found around hazardous waste sites and the effects of exposure on human health.
Toxicology curriculum for communities trainer's manual	www.atsdr.cdc.gov/training/toxmanual/	Training modules for lectures or seminars for communities on the topic of toxicology and issues surrounding environmental exposures.
ToxZine	www.atsdr.cdc.gov/sites/toxzine/	Summary of health effects, exposure, and recommendations in an easy-to-read magazine format.

Note. NCEH/ATSDR is in phase one of creating a tool that will be publicly available to investigate environmental justice. Phase two will involve linking the environmental burden index with the existing social vulnerability index to identify areas at risk for environmental injustice. The final tool will be an interactive mapping product that will also include access to the raw cleaned data.

cal engagement, economic investment in vulnerable communities, favorable neighborhoods, green jobs, collaborative partnerships, and inclusiveness.

Public health practitioners designing studies that not only reduce and mitigate disparities for all populations, but support communities in “owning” these interventions, create empowerment and applicable methods for community design, response to disasters, and healthy medical management for low-income and minority populations. Community knowledge and a consistent discourse between policy makers and vulnerable populations may potentially lead to sustainability for disparate neighborhoods. Practitioners designing culturally appropriate initiatives within the health sector could have a positive effect outside of the health sector as well. Connecting quality of life discrepancies will yield robust approaches in confronting environmental injustices.

Creating an Atmosphere of Justice

NCEH/ATSDR tools contribute to confronting environmental inequalities from a multifaceted lens. These tools include pediatric health training, the assessment of chemical exposures and toxicological profiles, healthy community design methods, emergency response for vulnerable populations, community education, and geographical mapping around EJ communities. The approaches put forward to address environmental disparities are not restricted to public health professionals. NCEH/ATSDR tools lend themselves to creating geographical knowledge for urban planners in the public and private sectors while designing transportation, land use, and sustainable development strategies for the community. Medical professionals are able to utilize the tool kits to help guide their understanding of various environmental health issues during patient visits. Environmental health maps assist

business, law, political, sociology, and public health students and professionals in learning about the health of their community while creating sustainable environmental initiatives for vulnerable populations.

The extension of scientific knowledge coupled with successful community design models are available for governmental agencies, policy makers, and industry professionals to make efficient decisions and assist in creating a sustainable society. A sustainable and healthy environment will contribute to the economic vitality of impoverished neighborhoods and business owners. Notably, the communities are empowered and equipped to tackle and confront environmental injustices by use of tools and other processes.

The various roads to EJ have finally met each other in a congruent fashion. Continuing to challenge and devote ourselves to vulnerable communities with passion and endurance from a multidimensional perspective may set

TABLE 2

National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) Environmental Justice Tools for Health Professionals

Tool	Web Site	Description
Case studies in environmental medicine	www.atsdr.cdc.gov/csem/csem.html	Self-instructional publications to increase primary care providers' knowledge of a hazardous substance in the environment and to aid in the evaluation of potentially exposed patients.
Grand rounds in environmental medicine	www.atsdr.cdc.gov/emes/health_professionals/grem.html	One-hour continuing-education seminars to increase primary care providers' knowledge of hazardous substances in the environment and to aid in the evaluation of potentially exposed patients.
Patient education and care instruction sheets	www.atsdr.cdc.gov/emes/health_professionals/instruction_sheets.html	General information on various environmental medicine topics to give health-care providers quick, ready-to-use materials to aid in patient care and instruction.
Pediatric environmental health tool kit training module	www.atsdr.cdc.gov/emes/health_professionals/pediatrics.html	Tool kit with detailed examples for health-care providers about how to best deliver anticipatory guidance on a range of environmental health issues, especially during well-child visits.
Managing hazardous materials incidents	www.atsdr.cdc.gov/MHMI/index.asp	Three-volume set with recommendations for on-scene (prehospital) and hospital medical management of patients exposed during a hazardous materials incident.
Medical management guidelines for acute chemical exposure	www.atsdr.cdc.gov/mmg/index.asp	Publication to aid emergency department physicians and other emergency health care professionals who manage acute exposures.
Priority list of hazardous substances	www.atsdr.cdc.gov/spl/index.html	List of hazardous substances based on a combination of the frequency, toxicity, and potential for human exposure at National Priorities List sites.
Scientific assessments and consultations	www.atsdr.cdc.gov/consultations/index.html	Chemical-specific technical information for scientists and public health and medical professionals.
Social vulnerability index*	http://svi.cdc.gov/	Tool to help emergency response planners and public health officials identify and map the communities that will most likely need support before, during, and after a hazardous event.
Toxic substances portal	www.atsdr.cdc.gov/substances/index.asp	Interface to guide users to information about specific toxic substances.
ToxGuides™	www.atsdr.cdc.gov/toxguides/index.asp	Quick reference guide for information such as chemical and physical properties, sources of exposure, routes of exposure, minimal risk levels, children's health, and health effects for a substance.
Toxicological profiles	www.atsdr.cdc.gov/toxprofiles/index.asp	Comprehensive information on the toxicological and adverse health effects of a hazardous substance.

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a precedent for reducing environmental disparities. Despite our victories, we still have a considerable amount of work to accomplish. Moreover, as we continue to collaborate and integrate the EJ framework as an operating principle through public health programs, we may be one step closer to achieving what we all call environmental justice. 🐼

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