

## Concept Clearance

**Branch:** Population Health Branch

**Council Period:** February 19-20, 2014

**Concept Title:** Environmental Health Disparities (EHD) Program

### Introduction

Medical advances and new technologies have increased the potential for Americans to live longer, healthier lives. However, persistent and well-documented health disparities (HD) exist among racial and ethnic minority populations, low socio-economic status populations, and rural and inner-city populations. Over the past three decades the NIH, EPA, and other federal agencies, have contributed to a remarkable growth in investments in research related activities towards low-income, minority, and tribal communities to address health disparities and create healthier and safer environments. While much has been accomplished since the early 1990s, minority and economically disadvantaged populations continue to bear a disproportionate share of environmental exposures and related adverse health outcomes, such as diabetes and obesity; cancers; and cardiovascular, renal and respiratory diseases.

Addressing health disparities continues to be a major strategic focus of HHS and NIH. For NIEHS, the strategic focus is more specifically on the unique contribution of the environment to HD, which we refer to as environmental health disparities (EHD). A growing body of evidence suggests that environmental factors (e.g. pollution, environmental toxicants, natural disasters and built environments) and social factors (e.g. socioeconomic status, education, psychosocial stress, access to health care, residential and community settings) contribute to adverse health conditions. Therefore, population-level disparities in environmental health may be attributable to one or more combinations of harmful exposures, differentials in the ability of minority and economically disadvantaged populations to withstand or mitigate harms, or the result of the synergistic effect of exposure to multiple environmental hazards and social stressors like poverty, psychosocial stress, and discrimination.

NIEHS' long-standing history dedicated to EHD research has focused on the unique contributions of the environment to HD. This research includes a large body of targeted collaborative research programs, tools and approaches to study the health effects of environmental exposure among vulnerable populations, children, and disadvantaged communities including the medically underserved. In the past, these programs have included: Environmental Justice (EJ) Program; the trans-NIH Health Disparities program; and the NIEHS-NCI-NICHD Centers for Population Health and Health Disparities program.

Additionally, NIEHS has coordinated with other NIH Institutes and Centers and other federal partners to fund programs that have included individual projects and activities focused on health disparities. This includes the Centers for Children's Environmental Health; Community-Based Participatory Research program; the Superfund Research Program; Research to Action Program; and the Worker Education and Training Program.

NIEHS actively participates in the implementation of the U.S. Department of Health and Human Services (DHHS) Environmental Justice Action Plan, and has begun to explore maximizing and focusing our strategic investments in research of EHD. Examples of this increased focus on EHD include the organization of the recent PEPH meeting in 2013 with the central theme of HD and EHD, and participation in the NIMHD EJ Summit (2012). During the 2012 Summit, EPA convened a meeting where NIEHS contributed intellectually to the development of a state of science action plan for EHD research and the recommendations from the Summit. This proposed EHD program can be considered the next step in our focused efforts to move forward the field of EHD research.

## Research Goals and Scope

### NIEHS EHD Program

NIEHS' current support for EHD research tends to be a component, rather than the primary focus, of projects within Program Announcements, such as Research to Action, our Centers programs, and the unsolicited portfolio. The proposed program of EHD research would build off of historical investments, incorporate many of NIEHS' strategic goals, including those in EHD, and provide dedicated funding to expand our interests in EHD research. In particular, a dedicated program would allow established investigators in EHD to more fully explore the intersection between environmental and social stressors contributing to EHDs. The ultimate goal is to improve the health of affected communities. Based on the success of past grant programs and collaborations, and input from the NIEHS Strategic planning process, we recognize that now is the right time to leverage our historical and current efforts in EHD research.

This EHD program will support interdisciplinary research and training to better understand the complex interactions between social, physical, biological and built environments and how these influence the health of individuals and populations. As such, this program will foster and stimulate existing research teams, or the creation of new collaborative teams, to conduct research in EHD where preliminary data or support may be limited, build the capacity and interest of traditional HD researchers in the environmental aspects of HD research, and facilitate the development of cross-cutting research activities and teams to support research in vulnerable communities where the link to environmental contributions to EHD is not yet well established. Furthermore, an EHD program will expand the pipeline for a new generation of EHD researchers and engage communities in "research deserts" through the support of training, capacity building, and the translation of findings into environmental public health initiatives and dissemination efforts.

Through the EHD Program, NIEHS may also have the opportunity to coordinate with other federal agencies and institutes to bring experienced HD researchers together with talented EHS investigators with a goal of tackling public health issues that affect health disparate communities. This may include coordination with the US Environmental Protection Agency (EPA), the NIH Office of Behavioral and Social Science Research and National Institute of Minority Health and Health Disparities, or with the Office of Minority Health. The EHD Program has the potential to bring new disciplines into environmental health research and expand traditional HD research focus to include environmental contributions to HD. The EHD program may raise interest among EHS investigators of the psychosocial and economic stressors that contribute to EHDs. Finally, given the importance of addressing HD/EHDs among vulnerable populations, as identified in the NIEHS Strategic Plan, the program can allow for research that fulfills several other of our Institute's specific strategic goals. This may include goals in exposure science, susceptibility across the lifespan, combined exposures, education and training and community engagement.

**EHD Program Goals:** Although, current EHD research supported by NIEHS address similar topics, this program would allow for larger, coordinated efforts among multi- and transdisciplinary teams of researchers and promote greater incorporation of psychosocial, racial/ethnic and economic stressors into risk assessments. It is anticipated that the program would attract basic scientists, epidemiologists, and social scientists working in EHS and HD research, as well as those with expertise in community engagement, large scale data management, environmental health education and communication, and evaluation science.

The Program is expected to advance our EHD efforts in the following three areas:

**Research** - Examine the broad social, psychosocial, economic, physical, chemical and biological determinants that may contribute to environmental health disparities, i.e., disproportionate amounts and types of exposures leading to negative health outcomes among vulnerable populations. This might include research examining

- how environmental toxicants and socioeconomic factors interact to influence human health

- exposures across the lifespan or at particular windows of susceptibility,
- exposures to harmful chemicals (i.e. pesticides, and/or metals) in the home or workplace, or in rural or inner city settings such as harbors and other transportation and industrial hubs
- the cumulative effects to human health of chronic exposure to particulates in indoor or outdoor air,
- the means for preventing or mitigating the synergistic effects of social and biological stressors on human health
- the development of tools and methodologies for data capture, measurement, analysis, and risk assessment that foster integration of the multiple factors that contribute to EHDs, or
- the development of cost effective and sustainable primary prevention and intervention strategies to mitigate environmentally-induced diseases, such as diabetes and obesity; breast cancer; or cardiovascular, renal and respiratory diseases, in health disparate communities.

**Capacity and Training** - Provide training and mentoring to develop the next generation of EHD researchers, with particular attention to increasing the diversity of EHD researchers; to develop a training pipeline for scientists to enter the field of EHD; and to raise the environmental health literacy of community partners in the research.

**Communication and Translation** - Support the translation of research endpoints into environmental public health initiatives and involve community partners in the research in translation and dissemination efforts.

Topics of particular interest to NIEHS include, but are not limited to, addressing the most vulnerable and historically health disparate communities, such as Native Americans/Alaska Native/Native Hawaiian, African-Americans, and Hispanics; examining exposures across the lifespan or at particular windows of susceptibility; and studies that consider the combined effects of multiple and persistent exposures on human health.

### **Mechanism**

Possible mechanism(s) that may be used over time to support EHD research could include individual research projects, multi-project programs, or competitive revisions to existing programs.

**Number of Awards:** NIEHS is considering committing a total of \$1-\$1.5 million in FY 2015 to support this focused EHD program.