

CHPAC Social Determinants of Health Letter to Administrator McCarthy

Appendix A

The Importance of Social Determinants of Health for Children

Background

Environmental science examines risk using the best evidence from careful identification of environmental stressors, toxicology, and modeling. Recent research suggests that unless risk assessment, risk management and human health protection include social and psychological factors that often magnify risk, human populations will face increasingly adverse health outcomes. According to the World Health Organization, “The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels” (WHO 2013). The social determinants of health are commonly referred to as environments where people live, labor, learn, pray, and play. These environments, in turn, are impacted by biological, chemical and social factors and these, in turn, lead to disparities in health.

Children’s Vulnerability

It is well documented that children are particularly vulnerable to environmental stressors because they have specific developmental, behavioral and physical factors that differ from adults. Mounting scientific evidence indicates that prenatal exposures may result in disease or disability during childhood or even adulthood. Likewise, children who are exposed to environmental stressors may suffer lifelong neurological and respiratory effects and may be more likely to develop certain cancers. More recent evidence links childhood exposures to adult onset disease. Due to physiological factors such as more rapid respiratory rates, less developed excretory systems, types of exposures, and diet, children are more at risk for adverse outcomes from chemical exposures. Further, developmental factors such as crawling on floors, hand to mouth behavior and indoor air exposures, increase the likelihood of their exposure to harmful chemicals. Children lack the ability to alter their environments and reduce their exposures to hazardous chemicals. Their cumulative risk often results from exposures both inside and outside their homes.

Social Determinants

Social determinants are implicated as factors that magnify risk for children. Children of economically disadvantaged families are more likely to live in neighborhoods with higher levels of contaminants, to attend schools, and day care where there may be higher levels of contamination, and to play in playgrounds built upon or located near toxic sites. Their parents are more likely to be employed in settings where there are toxic substances used that can come home on their clothes and personal items. As noted in the President’s Task Force on Environmental Risks and Safety Risks to Children May 2012 Report Coordinated Federal Action Plan to reduce Racial and Ethnic Asthma Disparities (EPA 2012) both medical care factors such as limited access to quality health care, fragmented care, lower levels of health literacy and cost as well as physical and psychosocial environmental factors such as higher levels of chronic stress, acute exposures to violence and competing priorities related to housing and food contribute to

asthma disparities. In this action plan, recommendation *4.2 Establish priorities and collaborations for research across federal agencies to test interventions that may prevent the onset of asthma and reduce disparities in the incidence of asthma* includes the need for research to address the role of cultural and social determinants. In 2013, the Centers for Disease Control and Prevention (CDC) examined health disparities and inequalities for the purpose of raising awareness of differences among groups regarding selected health outcomes and health determinants and to prompt actions to reduce disparities (CDC 2013). Recent research as noted in Appendix B examines the relationship between social stressors and environmental health outcomes.

Non-Chemical Stressors

The social determinants of health address non-chemical stressors that serve to exacerbate the effects of exposure to environmental hazards. In 2009, EPA's Science to Achieve Results (STAR) grants program issued a funding opportunity to assess risks from multiple stressors by 1) the development of analytical techniques for the analysis of disparate data for cumulative risk assessments and 2) to evaluate the combined effects of non-chemical and chemical stressors. In that request for applications, an environmental stressor is defined as "chemical, physical, biological, or social entity that can cause an adverse response to humans" (EPA 2009). EPA's funding opportunity discussion uses the non-chemical stressors framework developed by Morello-Frosch and Shenassa (Morello-Frosch and Shenassa, 2006). This framework identifies community level factors (the built environment and the social environment) as well as individual level factors (stressors and buffers such as social support, poverty/socioeconomic status, working conditions/occupational health, nutritional status/diet, psychosocial stressors, health care access, reproductive events and health behaviors) to identify the impact of chronic individual stress, and both chemical and non-chemical stressors upon health. Built environmental factors include land use/zoning and housing quality. Social factors include civic engagement/political empowerment, poverty concentration, access to services, food security, regulatory enforcement activities, neighborhood quality and social capital. Community level factors have been implicated as factors that affect individual level stress factors that can affect human response to chemical stressors.

National Strategies to Address SDH

Increasingly, national attention has been focused upon the impact of social determinants of health by federal agencies and national strategies such as Healthy People 2020, a product of the US Department of Health and Human Services Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives; National Institute for Minority Health and Health Disparities (NIMHD); the National Partnership for Action to End Health Disparities; and the National Prevention Council. The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives explicitly states that the Healthy People 2010 goals "address the environmental factors that contribute to our collective health and illness by placing particular emphasis on the determinants of health". Their recommendation to reduce inequalities in the social environment, such as access to healthful foods, parks and transportation, can facilitate healthy behaviors as well as address these social determinants (Healthy People 2020). The National Prevention Council's National Prevention Strategy specifically calls for improved air, water and land quality as well as safe housing and neighborhoods (NPC 2011). In 2009, the National Association of County and City Health Officials published a

policy statement to support the World Health Organization Commission on Social Determinants of Health report *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health and their implementation* (NACCHO 2009). In 2012, the Department of Health and Human Services (DHHS) issued the Environmental Justice Strategy and Implementation Plan that sets goals to address environmental justice in order to reduce health disparities. In their plan they incorporate the social determinants of health into their definition of environment noting that physical and social environments, as well as their interactions are a leading determinant of health and well-being (USDHHS 2012). Other efforts to address social determinants exist as well and collectively these examples demonstrate the growing support for the incorporation of SDH across national agendas.

Environmental Justice and SDH

EPA's commitment to environmental justice supports the need to address the disproportionate disease burdens that racial/ethnic minority, indigenous and low-income populations face in the United States (Nweke et al., 2011). To address fair treatment and meaningful involvement requires engagement with communities and a broad approach to social factors that contribute to inequities. While environmental justice advances health equity through response to the unfair distribution of chemical exposures in communities, using a SDH approach increases the likelihood that inequities are considered proactively for decision-making processes.

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Appendix B

Research Addressing Social Determinants of Children's Health

Introduction

The concept of social environment affecting child health has been explored in the research literature for more than half a century. In one of the earliest noted papers, Bransby et al. reported a relationship of worse home and economic social conditions on school absences (Bransby et al., 1946). The field has evolved since that time to focus on specific diseases, specific social conditions, and health disparities. While the social environment by itself is important to the EPA, a more recent direction of research which is of key interest to the EPA has been in relation to how social conditions affect susceptibility to environmental exposures. A recent study of pediatric allergy demonstrated that prenatal exposure to both stress and aeroallergens (dust mite) modulates the fetal immune system (Peters et al., 2012). Another study noted an important relationship of early life exposures and social stressors on child weight (Carter et al., 2012). Islam et al. reported that a high-stress home environment is associated with increased susceptibility to lung function effects of air pollution (Islam et al., 2011). These represent just a few examples of the growth of evidence that social environment can both affect health and increase susceptibility to environmental exposures.

Case Examples

In 1997, then EPA Administrator Carol Browner stated that while cumulative risk assessment had made great strides from a prior reliance on the old paradigm of one exposure, one outcome, there remained great difficulty in addressing the social, economic, behavioral or psychological factors that can contribute to adverse health effects. Administrator Browner referred to diverse factors such as existing health conditions, anxiety, nutritional status, crime and congestion. These limitations to cumulative risk assessment play out in every day scenarios across the United States where multiple, complex exposures, both chemical and non-chemical, take place in communities that often suffer from a disproportionate burden of disease (Browner and Hansen, 1997).

As an example, in 2012, a New York City elementary school sited in a former industrial building was found to have elevated indoor air levels of the solvent trichloroethylene or TCE (ATSDR 2013). Children attending the school come from predominantly low income, minority families, the very same families with high rates of asthma and obesity as is typical of many communities in the Bronx. While risk assessments account for windows of vulnerability such as age and developmental stage, they do not account for the contextual setting in which these exposures occur. Furthermore, risk assessments do not address the single most common health outcome seen in families in the acute aftermath of an exposure, the stress incurred by an exposure that is often difficult for families to comprehend. Improved methods that account for both diverse risk factors as well as diverse health outcomes are urgently needed so we can better answer families' questions of whether there exists a potential for harm.

There are however community level exposure scenarios where culturally specific risk factors have been taken into account in the risk assessment process. For example, dietary behaviors unique to Native American Indians have been accounted for in risk assessments examining PCBs exposures through fish consumption (ATSDR 1999). This is one example of factoring in unique characteristics of a population in the risk assessment process.

Cumulative Risk Assessment (CRA)

Cumulative Risk Assessment (CRA) is a potentially powerful method of integrating chemical and non-chemical stressors for exposure and risk management purposes. EPA is to be commended for furthering research on physiologic stress (such as allostatic load) and creating a dialog on how to combine information on stress and chemical exposure (EPA 2012). Unfortunately, it is likely that the application of this work is many years in the future as CHPAC finds that the requisite biological data (e.g., corticosteroid levels) will be very difficult to develop, and stress metrics (allostatic load) may be difficult to explain and defend to risk assessors who are trained in chemical risk assessment. CHPAC is also concerned that we need a clear and broad description of the potential health endpoints that should or could be combined with chemical stressors (beyond physiologic stress). EPA has an opportunity to consider the contribution that non-chemical stressors exert on adverse outcome pathways (AOP), because high-throughput screening and AOP models will likely be a key component of future research on cumulative risk assessment. As these new methods evolve, other methods to combine chemical and non-chemical stressors in risk management decision-making are needed.

Health Impact Assessment (HIA)

A tool for determining the specific social determinants and environmental hazards that are a concern to a community is Health Impact Assessment (HIA). HIA has been well tested and is growing in use at the community level through sponsorship by federal (CDC Healthy Community Design Initiative) and nonprofit funders (the Health Impact Project). HIA is a model of working with a community to understand the health and environmental conditions of concern to the community, assembling relevant data to better assess the concerns, and identifying and proposing alternatives to alter exposures and health outcomes. The community may find alternatives to regulatory action, and actions that can be implemented immediately or through different private and public actions than local government. In this way, HIA can simultaneously assess and address multiple, cumulative, and integrated biological, environmental, and social health risks among child populations—especially among child populations at greatest risk.

In 2011, the National Research Council Committee on Health Impact Assessment defined HIA as “A systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects” (NRC 2011). As part of their rationale for conducting Health Impact Assessment in San Francisco: Incorporating the Social Determinants of Health into Environmental Planning (Corburn and Bhatia, 2007), the San Francisco City and County Planning Department and Health Department were concerned that:

Contemporary environmental planning processes in the US have tended to evaluate human health impacts relative to existing regulatory thresholds (i.e. air pollution regulations) or, occasionally, via the conduct of a quantitative risk assessment (Steinemann, 2000). However, regulatory thresholds of single pollutants are not always protective of human health and almost no environmental laws mandate that the cumulative impacts of multiple pollutants in a geographic area be considered simultaneously (Morello-Frosch et al., 2000). While in principle quantitative risk assessment can be applied to assess the health consequences of any environmental hazard, it has focused almost exclusively on carcinogenesis from exposure to a single toxin. Risk assessment has also been widely criticized for overlooking chronic diseases, cumulative toxic exposures, and the combinations of chemical, physical, and social hazards that more accurately characterize actual human exposures (Kuehn, 1996). Further, Steinemann (2000, pp. 632 – 633) notes in a study of 42 environmental impact statements selected because of likely human health impacts: 62% (26/42) contained no mention of a health impact; 38% (16/42) mention health impacts but provided no analysis, and 17% (7/42) focused on risks of cancer due to exposure to toxic and radioactive chemicals.

Indeed, in 2011 the NRC's Committee on HIA noted that "...the analysis of health effects under the National Environmental Policy Act (NEPA) has been limited. To date, neither the Council on Environmental Quality (CEQ) nor federal agencies that comply with NEPA have produced guidance on the analysis of health effects . . . [but] the lack of guidance on analyzing public-health effects does not diminish the legal requirements to consider health in an environmental impact statement (EIS). Agencies complying with NEPA, however, often lack public-health expertise, and the lack of guidance may be a disincentive to a more robust, systematic approach to health. Although there is no formal guidance, existing regulations and relevant guidance provide a foundation for improving the analysis of health effects in an EIS." (NRC 2011). HIAs may be conducted without an EIS; there are advantages and disadvantages of including an HIA as part of the EIS process." (Corburn and Bhatia, 2007).

In 2012, the National Association of County and City Health Officials (NACCHO 2012) noted that HIAs are one approach that can be used to bring about Health in All Policies, and recommended that "Federal, state, and local governments should: promote the standardization of the HIA process for local health departments across the U.S.; [and] support conducting HIAs on national policies (e.g. Affordable Care Act) and policies [that are] implemented on state and local levels, but [that] also have a national impact (e.g. hydraulic fracturing);..." There is wide and growing support for developing HIAs as part of public health practice (CDC Health Impact Assessment Resources).

Summary of Research Needs

CHPAC sees a need for continued research in the combined effect of stresses related to children's physical/social conditions and chemical/immunological/pathogenic environmental hazards. However, CHPAC does not anticipate that every hazard can be or should be studied in combination with every social determinant of health. Instead, researchers will need to identify a few, broad categories of stress, both social and environmental, develop testable hypotheses for demonstrating the plausible synergistic effect of combined stresses, and propose and implement default methods of accounting

for the combined intensifying effects of social stressors and environmental exposures when definitive studies are not yet available to accurately describe cumulative effects. At the community, population, or demographic level, EPA can strongly support using HIA techniques to consider the cumulative impact of social determinants of health and environmental hazards in order to identify options that decision-makers have for risk management.

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Appendix C

Examples of Local Communities that Addressed both Environmental and Social Determinants of Children's Health

Successful Models for Incorporating Social Determinants of Health (SDH) into Environmental Decision Making

Community-developed and community-based demonstration projects and research are excellent models for EPA to promote for addressing the contribution that SDH make to environmental intervention projects or regulatory actions. Some of the examples were constructed using an environmental justice lens rather than a SDH frame, but the strategies used to engage community members is useful to future EPA work. A common theme that CHPAC notes is that the unique community needs are incorporated into the public health interventions. The unique needs that place the community at a disadvantage may include localized neighborhood chemical exposures, language barriers, education gaps, access to water or other supplies for hand washing or cleaning, and access to protective equipment (such as clothing) or methods (such as integrated pest management). The unique solutions that take advantage of the social conditions within a community include making use of elders in educating youth, using alternative education formats (community translators, community theater), and employment and training of community workers

Eight examples of projects related to asthma, lead poisoning, pesticides, and chemical exposures:

1. Reducing Pesticide Exposure in Farmworker Children

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/highlights/index.cfm>

This project from the University of California Berkeley is developing sustainable interventions to reduce pesticide exposure to farmworker children in Salinas Valley. Three intervention groups were identified with one being no intervention, a second having an educational component and a third being personal protective clothing, and hand washing with warm water. The interventions were carried out over one growing season (April to October). The project team has developed lightweight clothing to protect workers from pesticides in the field. In addition, the team has created and provides warm water in field to promote hand washing. The team discovered that warm water, in the cultural context of the workers, is considered to be better for their overall health than cold water. As a result of their technical interventions, many of the workers are washing hands and using coveralls (92%). Consequently, the take home pathway of pesticides is reduced.

2. A Social Network-Based Intervention to Reduce Lead Exposure In Native American Children

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/grantees/emory/index.cfm>

This study out of Emory University is set in Ottawa County, Oklahoma, an area that has been heavily mined for zinc and lead, and is the home of 8 Indian tribes. The aim is to engage Native American youth to test whether adding an inter-generational component to an existing social network-based lay health advisor intervention increases its effectiveness in mobilizing a Native American community to respond to heavy metal contamination from lead and zinc mining. The research project builds on previous work with these tribes and adding an intergenerational intervention and expanding the intervention to address cadmium. The research design is a quasi-experimental pretest-posttest design with a comparison group. Data collection methods for the outcome evaluation include a population-based blood lead screening of 400 Native American and white children (ages 1-6) and accompanying care giver interviews, organizational network interviews, and community leader surveys.

3. Communities Organized Against Asthma & Lead (COAL)

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/grantees/galveston/index.cfm>

This project was a community-engaged study conducted by the University of Texas Medical Branch (UTMB) that helped to identify disproportionate exposures to lead and a prevalence of asthma among Hispanic and Latino children near Houston, Texas, living in pre-1978 housing. The project helped increase community understanding of the health outcomes related to lead exposure through innovative bidirectional communication approaches such as theatrical performances illustrating the concerns related to the environmental health issue. The project generated data from community surveys that served as a foundation for additional home-based asthma intervention initiatives funded by the City of Houston. Project COAL demonstrated the value of combining the efforts of various stakeholders to identify and characterize risks of lead poisoning and asthma in children and reduce overall home environmental risks in the community. Collaboration with the City of Houston Health and Human Services Childhood Lead Poisoning Prevention Program (CLPPP) ensured that project findings and recommendations could be used to inform public policy. Their results also helped researchers understand the need to consider alternate methods to measure asthma prevalence within the Hispanic population.

4. Exposure Intervention in a Rural Pediatric Asthma Cohort

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/grantees/iowa/index.cfm>

This project out of the University of Iowa is a community-based, participatory, environmental intervention study in an established cohort of asthmatic children who reside in a rural, medically underserved, and ethnically diverse Iowa County. The cohort is currently serving as the control group for a medical intervention in the adjacent county. This project recognizes that interventions that are effective for urban residents may not apply to children living on farms and in rural communities. Thus, this project is testing the efficacy of an intervention that includes a household hygiene educational intervention, professional super cleaning, booster cleaning, and integrated pest control against a minimal intervention in the control group.

5. Healthy Schools Campaign: Partnership to Reduce Asthma & Obesity in Latino Schools

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/grantees/hsc/index.cfm>

The Community Partnership for Healthy School Environments, a four year project, consists of community-based organizations, research scientists, and health care providers in Chicago, Illinois. Partners are identifying specific school environmental health concerns in targeted Latino communities of Chicago through discussions, assessments, and audits. The communities help guide the project's direction through their involvement in each step of data collection, development of interventions, and evaluation. By having an active role in the project's method and process, the communities not only understand the importance of good school environmental health, but also gain the tools and resources to effectively address environmental stressors that will improve their overall quality of life. The goal of this project is to reduce disparities of asthma-related illnesses and obesity in the quality of care, quality of life, and diagnoses of these conditions in Latino communities.

6. Tribal Efforts against Lead (TEAL)

http://depts.washington.edu/ccph/pdf_files/CBPR_final.pdf
http://www.sph.emory.edu/departments_centers/bshe/research_resources/teal.html

Once a lead and zinc mining industry, the Tar Creek region of Ottawa County, Oklahoma, has been of concern to health workers and environmental activists since the mid-1990s because of contaminated soil and very high blood lead levels and anemia in the area's children that can lower IQ scores, shorten attention span, and cause difficulties with coordination and fine motor skills. This project used community-based participatory research methods to design and evaluate a lay health advisor intervention to address lead poisoning. Cross-sectional, population-based, blood lead screenings and detailed caregiver interviews were collected before and after the two-year lay health worker intervention. TEAL is widely credited with helping the Ottawa County Health Department and Indian Health Services to fully implement mandatory blood lead screening and parental notification for young children. It has also contributed to halting the use of mine tailings in construction and on roads without proper containment

7. Sixteenth Street Community Health Center (SSCHC) Community Lead Outreach Project

<http://www.altfutures.org/pubs/leveragingSDH/IAF-SSCHC-CaseStudy.pdf>

The City of Milwaukee had one of the nation's highest serum lead levels among children, and 34 percent of children under the age of six had elevated lead levels in 1996. Testing in clinics alone did not reduce the prevalence. The Community Lead Outreach Project began in 1997 with initiatives to deploy trained teams who went door to door to test lead levels among children, conduct home lead risk assessments and simple repairs, help owners participate in a city-funded window replacement program, and arrange medical follow-up. Ongoing monitoring of the program was done by the City of Milwaukee Health Department, which recorded the number of tests performed yearly and the results. As a

result of this SSCHC intervention, the lead poisoning prevalence in children dropped from 34 percent in 1996 to 1.8 percent in 2011.

8. Place Matters (Bernalillo County, NM Team)

<http://www.jointcenter.org/hpi/pages/bernalillo-county-nm-profile>

Bernalillo County's South Valley is a predominantly minority, underserved community. Problems of poverty, unemployment, and inadequate access to health care adversely impact residents' health status. South Valley residents also shoulder a disproportionate burden of pollution created by emissions from heavy industry when compared with residents living in other neighborhoods in Bernalillo County. The proximity of homes to industry is a leading concern of the Bernalillo County Place Matters Team and area residents. Data from the New Mexico Tumor Registry shows that residents of the Mountain View neighborhood in the South Valley experience greater incidence rates for lung, bladder, brain, and thyroid cancer and leukemia when compared with the rest of Bernalillo County. New Mexico Department of Health data shows the rate of hospitalization for asthma amongst 5 to 14 year-olds is highest in the South Valley's major zip code of 87105. The team is developing an epidemiologic surveillance tool based on the Connecticut Association of Directors of Health Health Equity Index. The tool will enable analysts and community members to explore the relationships between social determinants of health and health status in small geographic areas.

Three examples of projects related to sustainable redevelopment

1. Land Use, Environmental Justice, and Children's Health Project

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/grantees/ehc/index.cfm>

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/highlights/index.cfm>

Mobile and industrial air emissions place unfair burdens on low-income Latino communities in the Barrio Logan community of San Diego and the west sides of National City and Chula Vista, California. Emissions cause severe respiratory problems in children whose homes and schools are adjacent to truck-driving schools, freeways, and auto body shops. This project focused on air quality, land use, and respiratory health in these disadvantaged communities. Plans for development in these areas could increase these risks, or, if done with community input, produce healthier environments for children. The project focused on addressing these issues in several ways, including:

- Empowering Communities: Community Action Teams (CATs) participate in SALTA (Salud Ambiental, Lideres Tomando Acción) training developed by EHC. CATs are the principal means of community involvement and education. CATs facilitate community work on land use, air quality, and children's health and form the backbone of EHC's Toxic Free Neighborhoods, National City Land Use, and Green Energy Good Jobs campaigns. EHC empowers youth through education and outreach to high school and college students on air pollution and environmental justice. The CATs receive

information and help develop strategies for translating environmental health findings into policy at the neighborhood level, and creating support for policy change in the wider community.

- Developing an Environmental health and justice toolkit: EHC has trained more than 1,500 community residents through its leadership development program. EHC's Toolkit and guides are based on its Social Change for Justice Model and consist of web-based versions of environmental justice trainings on public decision-making, leadership, and community planning. The guides include SALTA and A Healthy Place to Live: A People's Guide to Community Planning.

2. Joseph P. Addabbo Family Health Center (Addabbo)

<http://www.altfutures.org/pubs/leveragingSDH/IAF-Addabbo-CaseStudy.pdf>

There are very few trees on the peninsula and Rockaway is on the flight path to Kennedy International airport. These factors contribute to the poor air quality in this urban area and exacerbate asthma in affected individuals. In 2007 Addabbo partnered with New York City Mayor Michael R. Bloomberg and New York Restoration Project (NYRP) Founder Bette Midler in the Million Trees NYC initiative to plant and care for one million trees throughout the City's five boroughs in the next decade. The goal of this effort is to expand New York City's urban forest by 20 percent to improve air quality. Addabbo helped find locations to plant trees in the Rockaways where the trees were most needed and would be cared for.

3. EPA Brownfield Program

<http://www.epa.gov/brownfields/index.html>

http://www.epa.gov/brownfields/success/public_health08.pdf

EPA's Brownfields Program empowers states, communities, and other stakeholders to work together to prevent, assess, safely cleanup, and sustainably reuse brownfields. Revitalizing brownfield sites creates benefits at the site and throughout the community.

Two of many Brownfield Programs and attributes that specifically connect health improvement and sustainable communities are:

- Urban Agriculture: Turning brownfields and vacant lots into safe community gardens and urban farms benefits the property and neighborhood by removing environmental hazards and improving poor quality, compacted, potentially contaminated soils and creating more biologically diverse habitats and healthy soil that can filter storm water. Growing vegetables, fruits, flowers, herbs and spices can connect cultures and encourage healthy eating habits while teaching useful skills. Introducing communities to healthy local food varieties and choices can help improve public health and the environment.
- The Brownfields Law provides local government brownfield communities with an opportunity to link brownfields and public health – through the provision that allows a local government to spend up to 10% of their grant to conduct monitoring the health of populations near brownfields sites that may be exposed

to hazardous substances. This provision provides new opportunities for partnerships with local, state, tribal and federal health agencies and community and private sector efforts to assess, clean and revitalize brownfields, while also advancing efforts to improve public health at the community level.

Seven examples of clinic-based projects:

1. Beaufort-Jasper-Hampton Comprehensive Health Services (BJHCHS)

<http://www.altfutures.org/pubs/leveragingSDH/IAF-BJHCHS-CaseStudy.pdf>

BJHCHS is located in Ridgeland, South Carolina and is a Federally Qualified Health Center with more than 200 personnel and 16 sites. Efforts to date include inspecting the homes of elderly patients for safety and providing assistance to prevent falls, improving lunch programs at local schools, encouraging healthy cooking, promoting accessible opportunities for physical activity, providing substance abuse and behavioral health services to help residents obtain and hold jobs and to encourage youth to pursue post-secondary education, and working with county agencies that define policy and control local resources, such as land for community gardens and walking trails. BJHCHS has also been successful in improving water quality and environmental health and safety. The community health center has eliminated parasitic worm infections among local children by prescribing and providing septic tanks and deep wells, has helped organize water systems and fire protection for two counties, and has worked with state government to change policy and mandate better sanitary services.

2. Community Health Partners of Montana (CHP)

<http://www.altfutures.org/pubs/leveragingSDH/IAF-CHP-CaseStudy.pdf>

CHP is located in Livingston, Montana and is a Federally Qualified Health Center with over 100 personnel and seven sites. To help adults and children reach their potential and to elevate them out of poverty, CHP is providing affordable computers to families, helping residents earn a GED, promoting childhood literacy through Reach Out and Read, placing adults in subsidized employment, providing workplace training, offering teen and adult parenting classes, and providing a preschool program and a weekly physical exercise opportunity for children. CHP has also initiated a dialogue with community partners about providing affordable housing, and has been instrumental in the creation of a local foundation to identify and monitor the community health and wellbeing drivers and to then support dynamic community action.

3. Hudson River HealthCare (HRHCare)

<http://www.altfutures.org/pubs/leveragingSDH/IAF-HRHCare-CaseStudy.pdf>

HRHCare is located in Peekskill, New York, and is a Federally Qualified Health Center with a network of 18 sites that deliver comprehensive primary, preventive and behavioral healthcare throughout nine counties in New York State's Hudson Valley. Efforts to date include improving opportunities for physical exercise, such as creating a paved path for local children and providing donated bikes and helmets; offering WIC services; promoting childhood literacy through Reach Out and Read; addressing housing needs through assistance with home purchases and necessary home improvements; lobbying

the county bus system to improve mobility; providing leadership and employment programs for teens; and promoting social inclusion among seniors by providing activities to remain active and mentor youth. The Health Unites Generations program in particular boasts a 50-60 percent retention rate among participating youth and seniors. HRHCare also took the lead in working with local Migrant Head Start programs to improve nutrition and collaborated with the New York State Migrant Program Parent Advisory Committee to successfully change the kind of milk that was served in Migrant Head Start centers across the state to be low-fat milk.

4. Kokua Kalihi Valley Comprehensive Family Services (KKV)

<http://www.altfutures.org/pubs/leveragingSDH/IAF-KKV-CaseStudy.pdf>

KKV is located in Honolulu, Hawaii, and is a Federally Qualified Health Center with 160 personnel and nine sites. They have established Hawaii's first domestic abuse shelter; integrating legal assistance into the medical setting; providing social services, cultural orientation, crisis intervention, ESL classes, and health care to Laotian refugees; connecting people with a source of gently used clothing; offering sewing classes for middle and high school girls that live in public housing projects to develop job skills and their self-esteem; providing access to loans to encourage community development; supporting an elementary school band program; and nurturing trust and relationships among residents through "talk story" (a Hawaiian expression used as a noun or verb to mean "an informal chat") and the growing, preparing, and sharing of food. KKV has also partnered with the community to develop a nature preserve, including community gardens and reforestation efforts which make exercise a natural part of the daily life for residents. KKV has also supported the successful passage of a formal commitment to make Honolulu a bicycle- and pedestrian-friendly city, and developed a youth bicycle exchange program that refurbished and provided nearly 2,000 bicycles to and installed 20 bike racks in the community over the course of four years.

5. La Clínica de La Raza

<http://www.altfutures.org/pubs/leveragingSDH/IAF-LaClinica-CaseStudy.pdf>

La Clínica de La Raza (La Clínica) is located in Oakland, California, and is a Federally Qualified Health Center with 800 personnel and 26 sites across three counties. Programs include training community members as promotores; providing opportunities for youth to learn leadership and community action skills; providing pregnant and parenting teens and their children with safe opportunities, support, and relationships with caring adults; helping Latino men explore better adaptive ways to be a man, a husband and a parent; organizing a diabetes walking group, and a supervised group for planning nutritious affordable meals and shopping strategies; having health educators perform "puppet plays" in local school classrooms to prompt discussions on violence and what the child or teen could do when a violent situation arises; coordinating a network of culturally and linguistically sensitive domestic violence services and education for immigrants; and offering WIC services and classes on managing stress.

6. La Maestra Community Health Centers

<http://www.altfutures.org/pubs/leveragingSDH/IAF-LaMaestra-CaseStudy.pdf>

La Maestra Community Health Centers in San Diego, California, is a Federally Qualified Health Center with more than 240 personnel and 15 sites. The community health center

particularly believes in tailored and educational programs such as financial, language, and environmental literacy classes as the basis for any social change and effective health care outcomes, but is also involved in a variety of SDH efforts such as providing referrals and educational programs for first-time home buyers, promoting childhood literacy and offering childcare, creating a community garden, operating a food pantry, collaborating to organize a farmers' market, and developing an emergency and disaster plan in collaboration with other first-responders in the community. La Maestra also provides micro-enterprise assistance, job training and placement, and transitional housing.

7. Sea Mar Community Health Centers

<http://www.altfutures.org/pubs/leveragingSDH/IAF-SeaMar-CaseStudy.pdf>

Sea Mar, which is located in Seattle, Washington, is a Federally Qualified Health Center and one of the largest community-based health providers in Washington, with more than 1,500 personnel and more than 60 diverse medical, dental, behavioral, and social-service sites. Efforts include helping youth pursue healthy alternatives to risky behaviors, develop leadership skills, and attend college with the help of a Sea Mar scholarship; providing adequate, safe, and affordable housing; offering citizenship preparation assistance; providing child care and early childhood education, including the Reach Out and Read program; offering WIC services, operating a community kitchen, and providing food literacy, nutrition, and meal planning education; helping increase healthy menu options at a local restaurant and inspiring a similar initiative in a nearby town; providing opportunities for children and elderly residents to socialize and to learn from each other; supporting employment and academic achievement among adults, youth who are behind in school, and youth who have dropped out of high school; and helping residents advocate for healthy eating and active living opportunities.

Fifteen examples of Place Matters projects:

1. Place Matters (Alameda County, CA Team)

<http://www.jointcenter.org/hpi/pages/alameda-county-ca-profile>

Among Alameda County's specific race/ethnic population groups, African Americans fare the poorest on most key measures of morbidity and mortality.

Team Objectives:

- **Affordable Housing:** An adequate supply of housing is constructed and preserved in proportion to demand, maintaining cultural, racial, and class diversity of the community. All housing is safe, habitable, and supports good health. No household resides in overcrowded conditions, is homeless, or spends more than 30 percent of monthly income on housing.
- **Education:** All school-aged youth have access to a quality education that prepares them to be productive members of the community, provides a safe and stimulating learning environment, and prepares them to achieve their goals. Schools expect and ensure that all students graduate. Life-long learning opportunities are accessible to all residents.

- **Economic Development:** All residents have access to high quality, living wage, local employment opportunities that provide healthy, safe, and meaningful work, so as to increase income and wealth equity.
- **Incarceration:** Institutional racism is addressed by all aspects of the criminal justice system. Alternatives to incarceration and evidence-based models are in place to address the underlying causes of crime and reduce the incidence of incarceration as a solution to social problems.
- **Land Use:** All residents live in communities where the air, soil, and water are clean and provide the conditions for good health. All residents have access to health promoting goods and services. Communities are designed to encourage social cohesion, through central meeting places and celebrate neighborhood identity. Jobs, affordable housing and transit are co-located when possible and healthy. Communities are designed to promote and support safe walking and biking, to provide access to quality affordable food, and to avoid disproportionate concentration of businesses that influence health negatively.
- **Transportation:** Citizens are easily able to go about their daily lives utilizing transportation systems that are accessible from their home and work and that are affordable. All public transit systems run on-time with well-maintained vehicles and shelters.

2. Place Matters (Baltimore, MD Team)

<http://www.jointcenter.org/hpi/pages/baltimore-city-md-profile>

Limited availability and unequal access to housing and educational resources over a sustained period of time have become systemic and not only obstructed quality of life opportunities for the children, youth and families of Baltimore City, but have led to institutional practices which create inequitable outcomes in housing and education that manifest in preventable “excess” death and disease. This team hopes to develop policies and the institutional transformation necessary to eliminate systemic and historical impacts of racism and its effects on housing and education differentials in Baltimore.

3. Place Matters (Boston, MA Team)

<http://www.jointcenter.org/hpi/pages/boston-ma-profile>

This team is focused on changing policy and practice within the systems that shape the health of our communities, such as: education, criminal justice, employment, housing, land use, and food systems.

- Prioritizing Health Equity
- Develop action plan to address health inequities in Boston
- Establish training center to expand health equity strategies across Boston and New England
- Raising Public Awareness
- Develop a city-wide Health Equity Campaign
- Legislative, Policy and Advocacy Development Data Collection
- Regulation Analyze hospital and health center data

- Establish a Health Equity
- Committee to review data and develop recommendations
- Train all Boston CHCs in the collection of data
- BPHC Anti-Racism Work
- Establish an Anti-Racism Advisory Committee
- Establish recommendations for policy, systems and process changes BPHC Health Equity Grants
- Continue to fund equity grants to community-based, faith-based and health organizations in Boston around top funding priority areas: Neighborhood Investment, Building Health Equity, Patient Education and Navigation, Workforce Diversity and Chronic Disease Prevention and Intervention.
- BPHC Health Equity Training Center
- Grantees receiving comprehensive training (undoing-racism, cultural competency, social determinants of health, and health equity)

4. Place Matters (Cook County, IL Team)

<http://www.jointcenter.org/hpi/pages/cook-county-il-profile>

Food justice is the policy reform focus for the Cook County Place Matters team. Food deserts are communities with limited access to markets or may be served only by fast food restaurants and convenience stores that offer few healthy, affordable food options. This environment negatively impacts communities of low incomes and race resulting in premature mortality, cardiovascular disease, diabetes, and cancer deaths to obesity and hypertension. There is documented disparity in the health outcomes and high mortality for African-American women in the Chicago area.

Team Objectives and Actions

- To develop a comprehensive system of care management that addresses the fragmentation of health and social services and resources for African American women.
- To increase the survival rate of African American women diagnosed with breast cancer.
- To address the impact of Food Deserts on health disparities in South Suburban Cook County.
- To develop fund raising and grant development strategies to support activities for breast cancer and Food Desert activities.

5. Place Matters (Cuyahoga County, OH Team)

<http://www.jointcenter.org/hpi/pages/cuyahoga-county-oh-profile>

East Cleveland, with a land area of about three (3) square miles and a 2000 U.S. Census population of 27, 217, is one of the most densely settled communities in Cuyahoga County, Ohio. The city has a poverty rate of 32%. In 2000, 17% of all housing units were vacant. Heart disease mortality rates are higher in East Cleveland (355/100,000) compared to the county and the nation (10% and 32% higher respectively)

Team Objectives

- Collaborate with the Health and Development Committee in developing a strategic plan to incorporate health into land use policies in East Cleveland.
- Establish or enhance opportunities for cardiovascular health promotion in East Cleveland linked to new land use policies.
- Establish a Dugway Brook Watershed subcommittee, which focuses on building support for the preservation and improvement of water quality, land use, and habitat.

6. Place Matters (Jefferson County, AL Team)

<http://www.jointcenter.org/hpi/pages/jefferson-county-al-profile>

Alabama leads the nation in chronic diseases and conditions linked to premature death, disability, decreased productivity, and soaring health-care costs. Efforts to ensure quality education, opportunities for employment, safe neighborhoods, healthy food access, transportation, adequate housing, and clean environments are needed. Our work seeks to improve the social determinants of health by: (1) informing and illuminating public policy debates via research, analysis, and information dissemination, (2) building capacity of community leaders, and (3) facilitating community action planning and implementation. Jefferson County Place Matters is involved in a number of efforts to improve health and quality of life for all residents, including, but not limited to, increasing access to affordable, healthy foods in underserved communities, developing community-level strategies that promote active living through improved land use and access to parks and recreational facilities, and aggressively monitoring and promoting laws aimed at preventing environmental degradation and safeguarding public health.

7. Place Matters (Marlboro County, SC Team)

<http://www.jointcenter.org/hpi/pages/marlboro-county-sc-profile>

The Marlboro County Inter-Agency is a non-profit organization with a 35-agency membership and houses the Marlboro County, South Carolina Place Matters Team. The team has targeted action to be taken in the following two areas:

- Gather ER use trend data and bring together the lead partners in a collaborative initiative to develop a plan to improve access to primary health and mental health care and medical homes; and (2)
- Gather high school graduation rate trend data and bring together the lead partners in a collaborative initiative to develop a five- year plan to provide more constructive after-school activities, reduce expulsion and suspension rates, and increase graduation rates.

8. Place Matters (Martin Luther King Jr. County, WA Team)

<http://www.jointcenter.org/hpi/pages/martin-luther-king-jr-county-wa-profile>

In King County, there are racial inequities in well-being that are influenced by such factors as: institutionalized racism, income, access to living-wage jobs, access to education and resource-rich schools, neighborhoods and access to safe, affordable

housing, and criminal justice involvement. Racism and inequities in income, educational attainment, housing, and criminal justice involvement result in health disparities. The team seeks to increase the capacity of King County departments to identify actions that will increase health and well-being and decrease inequities by developing an EIR tool. With this tool, new and existing King County programs, initiatives and policies can be assessed for their impact on equity. They also want to give communities a role in the decision making within the county, by enhancing existing efforts to involve the community and work with local communities to partner with county staff and others to address their issues of concern.

9. Place Matters (Mid-Mississippi Delta, MS Team)

<http://www.jointcenter.org/hpi/pages/mid-mississippi-delta-ms-profile>

Citizens of the MMD counties have a disproportionate share of obesity. In Washington County, the adult obesity rate is 38%. Race, disparity, poverty and limited access to available health services are the major social determinants contributing to this high obesity rate. Obesity leads to increased incidences of Diabetes, Hypertension, Heart disease, Asthma and Osteoarthritis. The goal of our project is to help citizens overcome the poor health status resulting from inactivity, improper nutrition and negative social determinants of health with short term and long term solutions/strategies.

Team Objectives

- Implement policy through legislation to require bike paths, walking trails, playgrounds and sidewalks in any new subdivision.
- Implement strategies to market community gardens resulting in increased access to healthy food choices, decreased dependence on unhealthy food outlets and increased community participation in physical activity.
- Decrease incidence of obesity in the counties by strategically marketing “healthy environment leads to a healthy community”, thus changing the mindset of the citizens to make positive lifestyle choices.

10. Place Matters (Orleans Parish, LA Team)

<http://www.jointcenter.org/hpi/pages/orleans-parish-la-profile>

Many of the current social challenges in New Orleans have resulted from the erosion of family and social support networks in the wake of the flood. Youth are lacking safe places to live and play, environments that are conducive to learning, and positive outlets for social development. The community is interested in building these resources back up as part of re-development efforts. Policy recommendations include ways to keep children in school and out of prison, provide opportunities for those who have been incarcerated, address mental health needs of youth and families, and develop student centric policies.

11. Place Matters (Prince George’s County, MD Team)

<http://www.jointcenter.org/hpi/pages/prince-georges-county-md-profile>

Prince George's County ranks significantly higher than the Maryland average for many rates of mortality, morbidity, and prevalence of chronic diseases. 69% of County residents are overweight or obese with 48% of children being overweight or obese.

Prince George's County has the second highest adjusted death rate from heart disease in Maryland: 280.4 per 100,000, while the state average is 252.8. For African Americans in Prince George's County the death rate from heart disease is 338.4 per 100,000, while for Whites it is 228.7.

Team Objectives

- Foster collaboration between public schools and parks /recreation to institute a daily after-school program geared toward increasing physical activity and healthy eating.
- Establish a food policy council that will address food access and reducing food deserts.
- Gather and research evidence-based and promising practices in land-use and zoning that will improve the built environment in places with high rates of chronic disease.
- Create Policy Development and Community Implementation teams that connect policy to practice and provide a place for building community leadership capacity.
- Enhance sustainable leadership opportunities, especially for youth and people in the community that have historically had less access to such opportunities.

12. Place Matters (San Joaquin Valley, CA Team)

<http://www.jointcenter.org/hpi/pages/san-joaquin-valley-ca-profile>

Residents of rural areas made up just 21% of the U.S. population in 2004, 58% of all traffic fatalities were the result of accidents in rural areas. Racial and ethnic minorities are disproportionately killed in MVAs, compared with non-Latino whites. Latinos, for whom MVAs are the fifth leading cause of death for all age groups. San Joaquin Valley MVAs occur at a higher rate in rural areas, and Latinos account for almost half of the region's fatalities. The team plans to conduct qualitative research on the social determinants of rural MVAs in the SJV in two rural local communities. This research will be done in two counties and will include community forums, focus groups, interviews, and a Photo Voice project. A pilot project in these communities will be used to develop an efficient model for raising awareness, training, and empowering rural communities to become not only safer drivers, but advocates for health equity as well. The pilot project will include an evaluation component (both of dissemination efforts and of project activities) and will utilize a regional task force and community advocacy groups made up of individuals from community-based organizations and community residents. The results of the networking, evaluation, and research done in the pilot project will be implemented in each of the eight valley counties, using pilot project participants to train residents of other rural communities.

13. Place Matters (South Delta, MA Team)

<http://www.jointcenter.org/hpi/pages/south-delta-ms-profile>

The Mississippi Delta leads the nation in hypertension, diabetes and the deadly consequences of those chronic diseases. Obesity and its roots—consist of a lack of exercise and poor diet—which are major underlying causes of hypertension and diabetes. Mississippi leads the nation in obesity. The South Delta Team will address the social determinants of obesity and chronic disease in our community. Through

community forums and programs that address lifestyles, we are increasing awareness of the problem and its potential solution. We are working on improving access to healthy foods and opportunities for exercise in our communities. As we develop partners in the community through these efforts, we are beginning to network with others in the state and the nation to empower our community to address the policies and social and economic conditions that must be changed to bring about health equity here.

14. Place Matters (Washington, DC Team)

<http://www.jointcenter.org/hpi/pages/washington-dc-profile>

The DC Place Matters Team is focused on creating a community-driven Culture of Wellness. This focus was bolstered by data emphasizing the particular dangers faced by District residents from the prevalence of obesity, and its role in the many chronic health conditions they faced, especially diabetes, hypertension, asthma, various cardiovascular challenges, and cancers. The DC team is committed to ensuring that the population, which has been most adversely impacted by poverty, joblessness, poor housing, and other social determinants, benefits from - rather than be replaced by - these changes ensuing from gentrification, the accompanying economic boom and other structural changes currently underway.

Team Objectives

- Build solidarity with community, seeing them as the most valuable resource.
- Create a collective consciousness around fundamental issues (ex: education, economic development, poverty, racism) through engaging all sectors in the development of policy.
- Ensure the equitable implementation of policies through accountability.

15. Place Matters (Wayne County, MI Team)

<http://www.jointcenter.org/hpi/pages/wayne-county-mi-profile>

The Wayne County Place Matters Team focuses its efforts on addressing issues of self-esteem/self-determination, social isolation, social perception of women, and racism. The goal is to improve preconception and inter-conception health and hence pregnancy outcomes in order to achieve the ultimate goal of reducing infant mortality and the disparities in infant mortality.

Team Objectives and Actions

- Distribution of White Paper to Stakeholders informing them of the problem. Have a committed group of Stakeholders that champion and/or implement strategies that increase self-assurance and self-reliance in women.
- Increased Community Dialogue on valuing womanhood and the value of improved preconception and inter conception health.
- Institutionalization of policies that value womanhood

Other Examples:

1. Lead Awareness: North Philly Style

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222230/>

This project was done in North Philadelphia, Pennsylvania. A community-developed and community-based demonstration/research project was implemented to address and prevent childhood lead poisoning. Interactive sessions were held for children in after school and camp settings with the aim to educate and create interest for parents. Parents were then invited to block parties and were given a standardized curriculum about the risk of lead as an environmental agent, in addition to incentives (t-shirts, bags, etc.) that promoted the same ideas. Interventions increased the number of children tested for lead and decreased lead blood levels compared to control groups in the study.

2. Harlem Children's Zone Project

<http://www.hcz.org/about-us/the-hcz-project>

This is a non-profit organization located in Harlem, New York that provides free support for poverty stricken children and their families in the form of parenting workshops, a preschool program, three public charter schools, and child-oriented health programs. The aim is to keep children on track through college and into the job market by helping kids from an early age and creating an environment of goal oriented and supportive peers and adults to counteract "the street."

3. Harlem Children's Zone Asthma Initiative

<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/grantees/harlem/index.cfm>
<http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/highlights/index.cfm>

This initiative uses a holistic approach to address the childhood epidemic in this community and monitors and analyzes the synergistic effects of multiple interventions. The aim is to assess the prevalence of asthma in children, enroll diagnosed children into the program, implement, monitor, and evaluate planned medical, environmental, educational, social interventions for each child enrolled in the HCZAI regardless of the severity of the disease, and develop a community-wide educational campaign. To date, preliminary results underscore a childhood asthma crisis in Central Harlem with 25% (N = 314 of 1,260) of parents indicated that their child has asthma as compared to commonly reported national rates of 5 to 7 percent. This project has increased awareness about asthma in Central Harlem community. HCZAI was also invited to discuss the Asthma Initiative and the New York City asthma epidemic on WNYC's Brian Lehrer radio show.

4. River Ambassador's Program

http://www.uml.edu/News/press-releases/2007/river_ambassadors_program_hon.aspx

The River Ambassador's program, sponsored by UMass Lowell's Center for Family, Work and Community, was an environmentally focused volunteer youth program

composed primarily of Cambodian youths attending Lowell High School. The mission was to learn more about environmental health concerns in the region, educate others in the community about those issues and take action to help improve the environment. The program received the “The Secretary’s Awards for Excellence in Environmental Education” from the Executive Office of Environmental Affairs in 2007.

Resources

NIEHS (2013). Increased Awareness. Environmental Justice and Community-Based Participatory Research Programs. Retrieved from <http://www.niehs.nih.gov/research/supported/dert/sphb/programs/justice/highlights/index.cfm>

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