

## Linking the Environment to Racial and Ethnic Health Disparities

John and Gina have suffered an asthma attack. Both children are 12 years old, but Gina is three times more likely than John to be hospitalized for the bout. What accounts for Gina's increased risk? It can be explained in large part by her race. Gina is black. John is white.

Across the U.S., state legislators and others who bear responsibility for public health are tackling the striking racial and ethnic disparities that exist in the prevalence of chronic diseases, such as asthma, heart disease, and breast and cervical cancer.

Consider these facts: according to a recent report by the U.S. Centers for Disease Control and Prevention (CDC), the rate of diabetes is two to three times higher for American Indians and Alaskan Natives than for all racial and ethnic populations combined. The Trust for America's Health reports that African-Americans have the highest incidence of cancer and are more likely to die from the disease than are other groups. And U.S.-born Hispanics have a greater risk of cancer than Hispanics who live in the same neighborhood, but were born in foreign countries.

Determined to close the disparities gap, state and federal policymakers are partnering with local stakeholders, including residents, businesses, the public health system and community-based organizations. Many of these efforts focus on the environmental stresses that are particularly prevalent in economically disadvantaged areas. By addressing and increasing public awareness of environmental concerns, these partnerships may hold the key to closing the gap between low-risk popula-

tions and those that are at increased risk for chronic diseases.

But the policymakers face serious obstacles. In its 1999 report *Toward Environmental Justice: Research, Education and Health Policy Needs*, the Institute of Medicine (IOM) concluded that communities with disproportionately high levels of toxicants, light, noise, odors and particulate matter may be at increased risk for disease.

For example, in conducting research for the report, the IOM interviewed residents of Nogales, Arizona, a low-income, primarily Hispanic/Latino community whose residents were exposed to air pollutants from manufacturing plants across the border in Mexico. The IOM investigators found unusually high rates of multiple myeloma, a form of cancer, and lupus. Industrial sites and industries that may cause pollution are more likely to be located in neighborhoods of lower socioeconomic level (such as Nogales) than they are in high-income neighborhoods.

Environmental pollutants contribute to some disparities in chronic disease—but other community-level conditions associated with lower socioeconomic status often play a role. In these instances income level may explain differences among groups as well as, if not better than, race or ethnicity.

Dr. Robert Fullilove, associate dean for community and minority affairs at Columbia University, has researched the increased risk of diseases such as HIV and asthma in Harlem. "Where you reside has as much to do with health risks as race," he explained. "When there is a significant lack of invest-

ment in schools and a whole host of city services, the have-nots are over-represented in prisons and hospitals."

In the case of asthma, for example, poverty, substandard housing, inadequate access to health care, lack of education, and failure to adequately control asthma with medication all contribute to asthma episodes and deaths, according to the Alliance for Healthy Homes.

Dr. Fullilove has advice for legislators who want to target these communities: "There's one classic lesson. These are all communities that have experienced serious decline in quality of life. . . Focus on these communities and ask what services are missing that are routinely available in well-off areas."

Underprivileged communities may experience higher levels of poor nutrition and lack of exercise, which the CDC says may lead to type 2 diabetes, hypertension, heart disease, stroke, some cancers, gallbladder disease and arthritis. Lack of playgrounds, open space and grocery stores with nutritious foods may exacerbate conditions in urban areas.

Dr. James Marks, director of the CDC's National Center for Chronic Disease Prevention and Health Promotion, explains why this problem is also a concern for the nation. "Chronic diseases such as heart disease and stroke, which will cost the United States a projected \$368 billion in 2004, often affect minorities in low-income urban and rural areas disproportionately," he said. "CDC works with communities across the country to encourage healthy lifestyles to reduce the burden of these diseases on our economy and health system."

### REACHING FOR HEALTH

The CDC hopes to surmount some of these hurdles through the Racial and Ethnic Approaches to Community Health (REACH 2010) program. This federal-state-local partnership supports the efforts of community coalitions to eliminate health disparities among minority populations. The CDC currently funds 40 REACH projects in 21 states.

One project, the REACH Detroit Partnership, administered by the Community Health and Social Services Center Inc., in Detroit, Michigan, informs, educates and empowers families, communities and health-care providers to better manage diabetes and prevent occurrences by building relation-

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Thomas A. Burke is one of the nation's leaders in exploring the link between the environment and public health. A professor and associate chair at the Johns Hopkins Bloomberg School of Public Health, Department of Health Policy and Management, he has joint appointments in the Department of Environmental Health Sciences and the School of Medicine's Department of Oncology. As principal investigator for the Pew Environmental Health Commission, Burke helped to establish the framework for a national approach to environmental public health tracking. Prior to his appointment at Johns Hopkins, Burke was deputy commissioner of health for the State of New Jersey and was director of the Office of Science and Research in the New Jersey Department of Environmental Protection.

*Q: What role does the environment play in causing health disparities?*

A: The environment really plays a role in everyone's health status. It can be broadly defined as housing, the built environment, and more narrowly defined as the kind of exposures that we get in the environment. We know from the earliest days of public health that the quality of the air, the quality of the drinking water and the quality of the housing are enormous determinants of the health of a community. The environment plays an enormous role not just in health disparities but also in community health.

*Q: What environmental factors are most important?*

A: If you take a look at the health of our communities nationwide, [you can see] that there are lots of social and behavioral factors that contribute to the indicators of community health.

Urban environments and environments where there are high concentrations of poor people, who may not have access to medical care, have poorer health indicators. These also happen to be the places where environmental quality has been challenged – because of historical industrialization, because of urban design, and because of concentrations of [car exhaust] and other related pollutants.

If you look at a national map of areas that have not met the standards of the Clean Air Act, you'll find that the areas that are hit hardest are the urban ones. Now that's not just minorities or people who are economically disadvantaged, but all the folks in those areas.

Still, the health indicators are the worst for those who have the least access (to health care) and are therefore more vulnerable to

## HEALTH TALK

### BURKE: LINKING THE ENVIRONMENT TO HEALTH DISPARITIES

the environmental contaminants. I think it's an important consideration in any prevention strategy that we focus our efforts on those who are at highest risk.

*A: Which health disparities cause the most concern?*

Q: Obviously a lot of disparities cut to very important social issues. However, there are also very important aspects of disparities that are environmental. If you look at the major causes of morbidity and mortality – heart disease, respiratory disease, even infectious disease to some degree – there are very important environmental components. In addition, there are a number of health conditions that we are becoming more aware of, including neurological and developmental issues, issues such as attention deficit and immune disorders, that again hit the disadvantaged hard. The role of the environment in these disparities is important.

*Q: Is it simply a matter of economics and income, or is there another reason for these disparities?*

A: I don't think you can separate the two. Unfortunately, those who are the most disadvantaged throughout our country bear the biggest burden of pollution. Look at where the garbage dumps are, where the superfund sites are, where the heavy industries are, where the obnoxious kinds of industries like rendering plants are. They don't happen in the wealthy suburban areas.

Our environmental decision-making really hasn't included full consideration of health effects. If you look at our waterways and where the toxic contamination of fish is highest, it's in our urban areas, where the industrialization has been most intense. If you look at where our sewage treatment plants are out of compliance, it's again in our urban areas.

The treatment and disposal of waste affects both rural and urban areas. Political clout and economic opportunity play a role in who is exposed, and in who is able to affect the environmental decision-making process.

*Q: What can be done to reduce environmentally related health disparities?*

A: There are several really important new aspects of what is going on in environmental

health, and one is a recognition that public health is an aspect of environmental decision-making.

One of the most influential new programs is the National Environmental Public Health Tracking Program initiated by the National Center for Environmental Health at the CDC, over the last two years. This program has taken a hard look at almost half of the states now and at several major municipalities. . . It looks at health patterns that are related to the environment, and at sources of exposure (to pollutants). It is moving us toward a much better understanding of exposure.

I think there are a lot of missing links in this area. For instance, we can see that the highest toll for certain cancers that may be related to the environment is in our urban areas and in areas where there are disparities. The same is true for certain respiratory diseases and for overall mortality. However, we really haven't filled in the blanks in understanding exposure.

One question in most environmental justice cases is: is this community exposed to things that are harmful to its health? Now we are developing new tools that can look at levels of contaminants within the human body and can address some of these fundamental questions. Right now I think there are tremendous gaps in our understanding. National environmental laws are not set up to take into account the issues of environmental justice and community health disparities, and disparities in exposure and environmental risk.

*Q: What is the role for state policymakers in this area?*

A: We're on the threshold of a new era for the states to take a leadership role in looking at some fundamental issues of zoning and environmental decision-making. The states can ask the critical questions: How does public health enter into the equation? Shouldn't the health of a community be part of the equation when making environmental decisions – whether it's the siting of a new source of pollution or investing in better pollution control or in the design of an environment that would be safe and habitable, perhaps by reducing traffic density and pollutants?

I think that an awful lot of the social, economic, behavioral and environmental factors that come together to determine community health are now being recognized as we move forward to address the issues of zoning, the built environment and creating healthy communities. † GA

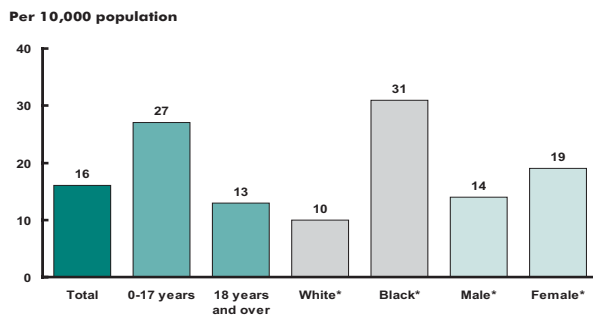
## Health Disparities and the Environment

### Deaths Due to Five Leading Chronic Disease Killers as a Percentage of all Deaths, United States, 2001

Cause of Death	Number of Deaths	Percent
<b>Five Leading Chronic Disease Killers</b>	<b>1,611,833</b>	<b>66.7</b>
Diseases of the Heart	700,142	29.0
All Cancers	553,768	22.9
Stroke	163,538	6.8
Chronic obstructive pulmonary	123,013	5.1
Diabetes	71,372	3.0
Other	804,592	33.3
<b>Total</b>	<b>2,416,425</b>	<b>100.0</b>

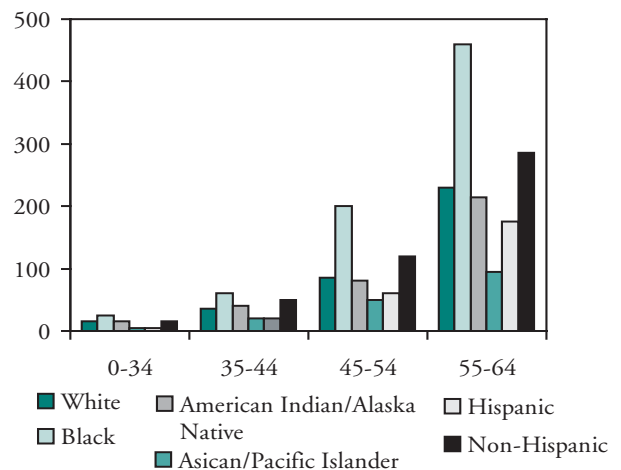
Source: Centers for Disease Control and Prevention, 2004

### Asthma Hospitalizations 2001



Source: National Center for Health Statistics, 2004

### Heart Disease Death Rates per 100,000, by race/ethnicity and age group



Source: Morbidity and Mortality Weekly, Centers for Disease Control and Prevention, Feb. 2004

ships, support groups and community-wide environmental changes.

Some of these environmental changes include the growth and cultivation of community gardens in two plots of land in Southwest Detroit, the start of four new neighborhood fruit and vegetable mini-markets, and numerous "Healthy Soul and Latino Cooking" demonstrations and classes.

Another REACH 2010 project, the Kansas City Chronic Disease Coalition (KC-CDC), managed by the Missouri Primary Care Association, also works to create environmental conditions that promote widespread behavioral changes. The aim is to improve the health outcomes associated with the high prevalence of diabetes and cardiovascular disease among African-American and Hispanic populations in Kansas City, Missouri.

The Coalition – in partnership with state and local health departments, neighborhood associations, and community and faith-based organizations – has implemented a "30/Thirty" Health Walks Program, a compilation of maps of 30 safe walking tours. The KC-CDC also has created a "Healthy Habits" program, which uses various environmental and organizational approaches to improve health outcomes among minority populations. For example, food suppliers are urged to promote healthy nutrition, access to health care has been increased by creation of a mobile health facility, media campaigns are used to increase the awareness of health risks, and healthy behaviors are advanced through social services programs.

The CDC's National Asthma Control Program also aims to reduce disparities by tracking and analyzing asthma data, recommending appropriate public health interventions and partnering with federal agencies, universities and other stakeholders. In FY 2003, the CDC funded asthma control projects in 37 states. These activities seek to reduce deaths, hospitalizations, emergency room visits, school and work absences and limitations on activity caused by asthma.

The federal government also investigates the role of the environment in chronic disease health disparities. The National Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health (NIH) performs research and provides grants for studies that explore how toxic exposures affect disadvantaged populations. Current NIEHS-funded activities range from research on occupational exposure to toxic substances among Hispanic meat packers, to environmental factors that may lead to end-stage renal disease, particularly in African-Americans.

**STATES TAKE ACTION**

Many states also are taking it upon themselves to tackle disparities in health. As of August 2003, thirty-four states had established offices of minority health through legislative or executive action. These state minority health offices often work to reduce barriers to care in communities, and they may undertake to improve the quality of health care that is available, which may in turn decrease rates of chronic disease.

Several states have taken additional steps. Minnesota launched its Eliminating Health Disparities Initiative (EHDI) in 2001. The initiative provides \$9.5 million dollars in grants to local or regional projects that will reduce racial and ethnic disparities in chronic diseases and address other needs such as infant mortality. One EHDI-funded project seeks to decrease cardiovascular disease and diabetes in American Indians by increasing physical activity and improving nutrition.

Florida has a similar program created under the Closing the Gap Act, passed by the state Legislature in 2000. Closing the Gap provides grants to community-based organizations, county health departments and other groups that work to eliminate health disparities in chronic diseases such as cancer and diabetes by improving access to care and health outcomes.

In the 2001-2002 session, California legislators passed a measure aimed at creating a state Environmental Health Surveillance

System that will track environmental exposures and diseases, with a focus on prevalence and determinants of chronic diseases. Sen. Martha Escutia, who represents the heavily Latino 50th Assembly District in southeast Los Angeles County and sponsored the legislation, has witnessed first-hand the impact that environmental hazards can have on the health of a community at risk.

"Many children in my district live near freeways and play in schoolyards adjacent to industries that use hazardous materials," she said. "I listened as teachers at a junior high school reported a high number of miscarriages among the faculty and heard parents complain about their children having a history of illnesses at that school, which happened to be surrounded by two chromium-plating factories."

The legislation created a working group that includes "experts with knowledge of the sensitivity and exposure of children, women of child-bearing age, seniors, and disparately affected populations to environmental hazards" to make recommendations regarding the surveillance system. The working group's first report released in February 2004 estimated that Californians pay over \$10 billion per year for nine environmentally-related chronic diseases, including asthma, cancer and lead poisoning. The report also found that reducing those nine environmentally related diseases by 1% could save Californians \$100 million annually.

The policy research center at the University of California responsible for the report acknowledged that this venture would require a team effort – a theme common to all of the projects explored in this article. *✦ AJ*

**ADDITIONAL RESOURCES:**  
CDC Asthma Control Program:  
[www.cdc.gov/asthma](http://www.cdc.gov/asthma)  
CDC Racial and Ethnic Populations  
Page: [www.cdc.gov/omb/Populations/populations.htm](http://www.cdc.gov/omb/Populations/populations.htm)  
CDC REACH 2010 Program:  
[www.cdc.gov/reach2010](http://www.cdc.gov/reach2010)

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