

If nature doesn't discriminate, humans do; causing disparities in health where we live, work and play

HEALTH DISPARITIES IN BLACK AND WHITE

Recognizing the need to serve the poor and medically underserved, the Department of Health and Human Services initiatives set as a goal the elimination of health disparities among different segments of the population by the year 2010. This is our national policy on health promotion and disease prevention. In some sense, this policy is self-serving. Obviously, the nation cannot effectively compete in an increasingly global economy if significant segments of its workforce cannot participate in the production of goods and services because of illness, physical or mental.

Health disparities are caused by numerous factors, including, on the one hand, affluence and overabundance, and on the other, poverty and unequal access to health care, both preventive and curative services.

Evidence is mounting that environmental factors contribute substantially to most diseases of major medical and public health significance. In fact, most of the principal causes of death in the United States (cancer, chronic lung disease and diabetes) have significant environmental causes. In addition, environmental effects on usually nonfatal conditions (birth defects, asthma, nervous system dysfunction and reproductive problems) are well documented.

From polluted air and water to toxic substances in soil, food and in workplaces, schools and homes, environmental pollutants can pose both direct and indirect threats to human health.

As far back as 1906, W.E.B. Du Bois, in his report on "The Health and Physique of the Negro American," recorded that Blacks in the U.S. had markedly worse health status than

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Whites. In that period, environmental health problems were by and large in their effects and short in duration. Today the importance of "place" in determining health status has become increasingly clear. The *places* in which people work and live have an enormous impact on their health. The characteristics of place include the social and economic environment, as well as the natural environment — air and water, for example — and the "built" environment, which may include transportation, roads and other infrastructure. In this setting, environmental problems are more persistent and widespread. They are long-term and are not amenable to "quick fixes." Their resolution require more active community and societal engagement, including the participation of policymakers, health care providers, business executives and educators.

Even in this era when emphasis is placed on genetic factors for disease and disability, resulting in huge investments in genetic research, solid lines of evidence show that environmental factors play a role. This evidence makes clear that the ways in which the environment affects disease and health conditions differ from individual to individual depending on age, what you eat, where you live and where you work.

Historically, federal and state agencies have set pollution standards and developed regulations to protect all citizens from environmental pollution. Air and water quality standards, for

Professors Paul Mohai and Robin Saha at the University of Michigan and University of Montana respectively, through their research, have answered that "chicken-and-egg question:" poor and minority populations lived in the areas before the waste facilities arrived. Mohai's and Saha's findings support the long-held view that poor and minority communities are targeted for hazardous waste facilities, incinerators and other facilities not wanted in more affluent neighborhoods.

In addition, heavy vehicular traffic routes are frequently routed through minority neighborhoods. A prime example is the disruption of the Meharry Medical College and Fisk University neighborhoods in north Nashville. Those neighborhoods are now rife with air and noise pollution from cars, trucks and buses on the interstate highway that intrudes on the quality of life of these mainly poor minority communities. Highway "planning" in other cities has followed a similar pattern.

These examples are not to suggest a lack of progress in air pollution improvement. In fact, over the past three decades the nation has devoted substantial efforts to improve air quality. Despite the progress (for example, removal of lead from gasoline), the problems posed by pollutant emissions, from motor vehicles and power plants in the U.S. are by no means solved. Future economic and population growth, along with the increased needs for electricity and transportation, will undoubt-

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example, are set to protect the nation as a whole. Be that as it may, a number of reports, including a widely publicized analysis by the United Church of Christ in 1987, brought national attention to the fact that exposure to environmental and occupational hazards is not shared equally. Minority and low-income communities bear a disproportionate share of the nation's air, water and toxic waste pollution problems.

In general, the poor and underserved segments of the population are the most vulnerable to the health impact of environmental pollution in the community and in the workplace. Socioeconomic disparities in the U.S. are large, persistent and increasing despite the general improvements in many health outcomes. The most advantaged American men and women experience levels of longevity that are the highest in the world. However, less advantaged groups experience levels of health that are unacceptable, given the nation's medical and scientific know-how. The poor and underserved populations are typically more exposed, in terms of residential and occupational locations, and often have inadequate resources for taking preventive, protective, or adaptive action.

During the past 20 years, environmental advocates have argued that hazardous waste facilities are built in politically powerless, poor and minority neighborhoods. Others disagreed and argued just as forcefully that the hazardous waste facilities were there first and that the neighborhood changed as a richer White population fled.

edly increase the potential for more air pollution.

African Americans and Hispanic-origin populations are more likely than Whites to live in areas with reduced air quality or in a so-called non-attainment area. That is, an area that does not meet national air quality standards. This disproportionate exposure contributes to the incidence of disease, including a reduction in lung development of children, an increase in the risk of developing asthma and increase in school absences due to respiratory illnesses, and heart disease problems for all age groups. What is more, the effects of air pollution are not limited to lungs and the heart, but may cause inflammation of the brain.

Confined animal-feeding operations, particularly hog feeding, are another source of pollution. Hundreds and hundreds of animals raised for slaughter create a stench that is not only odorous but also unhealthy. These animal-feeding farms create, in other words, a hazardous environment. Yet, some are located closer to schools enrolling a higher percentage of economically disadvantaged students. The odor is a harbinger of other problems, such as potentially hazardous gases and particles, mold, ammonia and animal dander. Compared to people living farther away, residents living near confined animal-feeding operations report higher prevalence of headaches and respiratory symptoms.

The Clean Air Act (CAA), passed by Congress in the 1970s and later amended in 1990, is the nation's legal framework for promoting public health and public welfare through the preven-

promoting public health and public welfare through the prevention and control of air pollution. While a good law in many respects, the CAA does not have programs aimed at mitigating pollution effects that may be borne disproportionately by minority and low-income communities.

Health concerns about air pollution are not limited to outdoor exposures. Equally important is indoor air quality. The home remains a major source of environmental contaminants. Stoves, heaters and household cleaning compounds contribute to childhood respiratory infections and reduced lung function. For the poor and underserved populations in urban areas, pesticides to control insects and rats could be added to the list of air pollutants. Often associated with substandard housing, and inadequate municipal services such as street cleaning and waste collection, pesticides are a class of chemicals that disrupt nervous systems. They are effective in eliminating insects and other pests.

A New York study found that pregnant African and Dominican women were regularly exposed to pesticides in their inner-city apartment units where pesticides were used for cockroach and other insect control. The amount applied increased significantly with the level of housing disrepair, an ongoing problem in many poor neighborhoods. It was not unusual for exterminators to spray pesticides more than once a month, thus increasing the duration of the women's exposure.

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The prenatal exposure to pesticide may be more dangerous than previously thought. Exposure to small doses of some pesticides, known as organophosphates, or Ops, at key periods of a child's development can cause permanent change in brain function. Pesticide-exposed children may experience diminished stamina and coordination, impaired memory and reduced creativity.

Other studies indicate that exposure to environmental agents during development can result not only in death of the embryo/fetus, but birth defects and altered growth, the effects of which may not be seen until the child becomes school age.

The increasing attention to environmental influences on the health of children has made clear that today's youth are in a much different environment than their parents and grandparents. Today's environment includes technological growth, and an increased consumption of goods and services. All of these developments increase the potential exposure of children to new products and some 80,000 new synthetic chemicals used to manufacture them, and other risk factors associated with advances in science and technology.

Increasing numbers of people and products now cross national borders and may transfer health risks such as infectious disease and chemical hazards. For example, pesticides that are not registered for use in the U.S. could be imported in fruits, vegetables and seafood produced and shipped from abroad. Children are highly vulnerable to environmental toxins because

they are undergoing growth and development.

Thus, there is increasing concern about the disproportionately high rate of disorders of the nervous system, asthma and cancer in minority and underserved children. While these health disparities reflect many factors, it is reasonable to conclude that they are caused in part by exposure to certain environmental toxins from poor housing quality, industrial operation and diesel emissions, to name only three.

These, then, are examples of issues that must be addressed if we are to achieve the goal of eliminating racial/ethnic disparities in health.

The U.S. has taken important steps to strengthen its capacity to address environmental health and disease determinants. Dramatic advances in science, technology and medicine have enabled us to make strides in our struggle to prevent and control disease and disability, yet we cannot fall prey to an illusory complacency, when significant segments of the population are still not benefiting from these advances. We must do more to improve our ability to detect and prevent environmental pollutants and other hazardous conditions. For instance, the ongoing planning necessary for full implementation of the Clean Air Act provides ample opportunity to incorporate programs and services to address pollution that might be borne disproportionately by minority and low-income communities.

However, addressing environmental health disparities calls for more than tinkering at the edges, or more biomedical research and scientific analyses. It requires more active participation and leadership of governments at all levels. Governments must be more sensitive to the importance of having the voice of poor and underserved groups in decisions that affect their health, environment and quality of life. All too often, governments communicate with these groups after environmental decisions have been made, and the public is asked to comment on a completed plan.

Government officials and the business community have many resources on which to draw to shape environmental and public health policy, including the ability to access other powerful interests. Others, such as national organizations, may also have some resources and a degree of influence. But the poor and under-resourced groups in, for example, a "polluted" neighborhood generally do not. Yet, these groups, individually and collectively, can provide firsthand views of the varied and complicated health threats to their neighborhood, information that can be invaluable in societal efforts to prevent and control environmental factors for disease, disability and premature death.

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