Social Determinants of Health

Social and Environmental Determinants of Health

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO 2005).

The past twenty five years have seen major advances in the practice of medicine including discovery of immunosuppressive drugs that make organ transplantation possible, development of new procedures such as in vitro fertilization and microscopic surgery, invention of new diagnostic tools like the PET scanner, and approval

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of new medications such as those extending the lives of individuals infected with HIV. These innovations have made a major difference for many patients and their families. Yet despite the positive impact of these new technologies, they do not address the root causes of morbidity and mortality. As Bell and Standish (2005) note, "health status is largely a function of factors beyond the bounds of the health care system including income, race, behavior, genetics, and environmental conditions."

Emphasis on social and environmental determinants is not a new phenomenon. Indeed, some have suggested that the large decline in infectious diseases often attributed to immunization and hygiene efforts of public health pioneers, were actually the result of improved nutrition,

diminished social crowding, and declining birth rates (McKeown 1990). Still, the past several decades of research have resulted in more precise definition of both the physical dimensions of the environment that are toxic to health as well as conditions in the social environment, such as social exclusion, racism, educational achievement, and opportunities to advance in the workplace, that shape behavior and access to resources that promote health. In Canada, the 1974 publication of the Lalonde Report first brought international attention to the importance of factors outside the health delivery system on health status. In Great Britain, the controversial Black Report, published in 1980, called attention to the persistence of health inequalities in a fully insured population. In the United States, Healthy People 2000, and later Healthy People 2010, the national health promotion and disease prevention agenda, focused heavily on social and environmental determinants.

What Have We Learned

There is a rich research literature both documenting the impact of social and environmental factors on health, and making the case for the pathways by which these conditions affect health outcomes. This section considers how income and social class, social capital, and the physical environment affect human health. The impact of another important social factor, race and ethnicity, is discussed under the tab, Racial and Ethnic Health Disparities.

INCOME AND SOCIAL CLASS

Nearly 37 million Americans (12.6 percent of the population) were living in poverty in 2005. Of these, 43.1 percent could be considered severely poor with incomes below

THE SOCIAL DETERMINANTS TEN TIPS FOR BETTER HEALTH

The Centre for Social Justice, a Canadian advocacy organization with its roots in the Jesuit social justice movement, offers the following tips for better health, as a complement to the more traditional tips to stop smoking, eat more fruits and vegetables, and wear sunblock.

1. Don't be poor. If you can, stop. If you can't, try not to be poor for long.

2. Don't have poor parents.

3. Own a car.

4. Don't work in a stressful, low-paid manual job.

5. Don't live in damp, low-quality housing.

6. Be able to afford to go on a vacation and sunbathe.

7. Practice not losing your job and don't become unemployed.

8. Make sure you have access to benefits, particularly if you are unemployed, retired, or sick or disabled.

9. Don't live next to a busy major road or near a polluting factory.

10. Learn how to fill in the complex housing benefit/shelter application forms before you become homeless and destitute.

Source: Centre for Social Justice, *Social Determinants Across the Lifespan*, <http://www.socialjustice.org/subsites/conference/resources.htm>, accessed October 2006.

half of the federal poverty line of $15,577 for a three-person family (Center on Budget and Policy Priorities 2006).

Poverty rates are cyclical, and are generally in tune with the general pattern of growth and recession of the U.S. economy. Twenty five years ago, the share of individuals living in poverty was similar to today (13 percent) with periods of higher poverty during the early 1990s when poverty rates reached as high as 15.1 percent (U.S. Census Bureau 2006).

It is important to look at more than poverty rates to assess the vulnerability of the nation's poor. Despite the most recent economic recovery, for example, the average amount by which the poor fall below the poverty line (about $3,200) is at its highest level ever. Income inequality

also appears to be growing with the top 1 percent of U.S. households receiving over 40 percent of the 2004 increase in household income (Center on Budget and Policy Priorities 2006).

What are the implications of these statistics? First, poverty is commonly identified as a risk factor for poor health. Being poor influences individual risk behaviors and resources that are conducive to good health and creates chronic stress. Second, deficits in health both aggravate and perpetuate poverty. Both short and long-term disability compromise one's ability to get an education, enter the workforce, and advance to higher levels of control and income. In addition, low-wage work and unemployment compromise health by increasing the risk of exposure to workplace injuries

and psychological stressors (MRDC 2006).

Numerous studies have found a strong linear relationship between socioeconomic status and health, including the Black Report noted above. Because health status for groups at the higher rungs of the socioeconomic ladder is consistently higher than for those on the lower rungs, there is an assumption of causality between resources (measured by education, income, occupation, and wealth) and better health (PolicyLink 2000).

The Whitehall studies of the British civil service found a gradient between health and social class, even within a fully employed, non-poor population. As Canadian health economist Bob Evans noted in a plenary speech before Grantmakers In Health in 1999, "this is an argument that the overall structure of hierarchy somehow has a significant effect on health, over and above the general issue of whether people are suffering from material deprivation."

Social Capital
Harvard epidemiologist Ichiro Kawachi (1999) defines social capital as "those features of social organization—such as the extent of interpersonal trust between citizens, norms of reciprocity, and density of civic associations—which facilitate cooperation for mutual benefit." People with a greater number of social relationships live longer, are less likely to be depressed, are less likely to experience severe cognitive declines as they age, and appear to recover more rapidly from illness. Moreover, even the perception that others will be there to provide

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support predicts more positive health outcomes in the face of stressful events (RWJF 2003).

There are several explanations of how social capital affects health. "There have to be biological pathways through which social factors operate," notes Evans (1999) "because at the end of the day, death and disease are biological events." Social factors take their toll on the body in part "by cumulative wear and tear through repeated activation of physiological stress responses" (Berkman and Lochner 2002). Data from the Whitehall study, for example, showed increases in blood pressure during the work day for both high-status and low-status civil servants. What was notable, however, was not that work created physiological stress, but that upon leaving the stressful work environment at the end of the day, the high-status workers experienced a sharp drop in blood pressure, returning quickly to normal levels. Low-status workers also experienced a decline but of a smaller magnitude (Evans 1999).

Kawachi and his colleagues (1999) offer a complementary explanation, suggesting that social connectedness influences individual health behaviors. Personal relationships and connections to institutions thus may promote the diffusion of information on health, create norms for

adopting healthy habits and discourage behaviors with negative consequences, increase access to services and amenities, and create an environment of affective support.

The Physical Environment
Environmental factors, such as air and water quality, exposure to pesticides and toxic waste, and housing conditions, play a major role in health and human development. Poor air and water quality have been directly associated with diseases such as cancer, asthma, certain birth defects, and some neurological disorders. Many cancers are linked to toxins in the environment, such as dioxin, polychlorinated biphenyls, and mercury. Airborne particulate matter, tobacco smoke, and ground-level ozone, have been shown to trigger asthma attacks in children. Exposure to lead, found in peeling paint or in the soil and air in many low-income communities, can impair cognitive and behavioral development, lead to low birthweight among infants born to exposed mothers, and cause kidney damage.

The environmental health movement began coalescing in the 1960s, eventually leading to passage of the Clean Air Act, the National Environmental Policy Act, the Clean Water Act, and the Superfund Act (Wikipedia 2006). The Environmental Protection Agency was established

in the early 1970s and the Center for Environmental Health at the Centers for Disease Control and Prevention in 1980 (Wikipedia 2006; National Center for Environmental Health 2006). During the 1970s and 1980s, the contamination of the Love Canal, accidents at the Three Mile Island and Chernobyl nuclear power plants, and the explosion of a chemical plant in Bhopal, India drew media attention to environmental threats to human health.

The term, environmental justice, refers to the fair treatment and meaningful involvement of all people in the development, implementation, and enforcement of environmental policies.

Yet despite overall gains in environmental quality since the 1970s, mainstream environmental policy neglected problems in low-income communities of color that often lack the political and economic resources to defend themselves. For example, when ocean dumping was banned in New York, the city transported its sewage sludge (much of which was contaminated or laden with heavy metals) to Sierra Blanca, a small town in Texas that is 80 percent Latino. In essence, the town became the new dumping ground for New York City's trash. During the 1990s, 200 such sites were created in the state of Texas (Faber and McCarthy 2001).

The term, environmental justice, refers to the fair treatment and meaningful involvement of all people in the development, implementation, and enforcement of environmental policies. This movement has achieved impressive results since its start in 1982. "In

low-income towns and communities of color, hazardous waste sites are now being cleaned up, brownfields are being redeveloped, incinerators are being shut down, parks and conservation areas are being established, local pollution threats are being eliminated, cleaner and more accessible means of public transportation are being adopted, and unique habitats and wild lands are being protected" note Faber and McCarthy in their monograph, *Green of Another Color*, published by the Aspen Institute. The creation of the National Environmental Justice Advisory Council and other federal actions have also significantly improved the performance of the Environmental Protection Agency with regard to policy design, implementation, and enforcement.

Another development in environmental health practice has been the adoption of what is known as the precautionary principle. Although the precautionary principle has a number of different interpretations, it essentially states that prudent action should be taken to avoid harm to humans and the environment, even when scientific certainty has not been established. Such precautions are warranted, advocates say, because, while we have some understanding of the effects of acute exposure to individual substances, we know very little about the results of cumulative exposure over time, and even less about the dangers posed to children, the elderly, pregnant women, or those with suppressed immune systems. Furthermore, we are only beginning to learn about the additive and synergistic effects of exposure to a variety of these substances in the environment. The successful reduction and elimination of lead in

gasoline, paint, and pipes is an example of action guided by the precautionary principle. In the case of lead, steps were taken to remove the metal from a number of sources, rather than waiting for conclusive evidence indicating which source was most offensive to human health.

Philanthropic Activities

Health grantmakers are working in a variety of ways to address the social determinants of health. They are creating jobs and improving the quality of low-wage jobs, addressing environmental degradation in low-income communities of color, working to create stronger social connections, taking on institutional racism, improving education, and addressing substandard housing. We focus here on the first three of these.

ADDRESSING EMPLOYMENT AND POVERTY

In 1995, the board of The California Wellness Foundation designated work and health as one of five priority areas. This decision led to a $20 million commitment to four programs. (In addition, the foundation also made available $5 million to support unsolicited requests.) Computers in Our Future focused on enhancing job mobility, offering opportunities for low-income youth to develop technological skills. Eleven community technology centers were funded across California, eventually serving more than 25,000 people. Another accomplishment was the creation of a policy workgroup that became a voice for community investment in technology as an economic development strategy. Winning New Jobs offered a reemployment workshop for dislocated workers. Over four years, the program reached more than 5,000 Californians and raised awareness

among employment agencies of the health and mental health consequences of unemployment, improving their ability to meet the needs of all clients, not just those served under the grant. The Health Insurance Policy Program focused on analytic activities to document the key links between health insurance, employment, and health in California. Studies by University of California researchers were shared with policymakers and advocates to focus attention on these issues. Finally, the Future of Work and Health supported research to identify and understand how structural changes in the state's economy and workplaces were affecting health. A large grant funded the California Work and Health Study, a three-year longitudinal study combining work and employment variables with health measures. Survey results received extensive coverage in the popular press and peer-reviewed journals; they also served as the basis for briefings with state legislators (Brousseau and Peña 2002). Moreover, long after the foundation's commitment ended, about half of the computer centers are now providing services at greater levels than during the grant period. Research grantees have also been able to continue work on the connections between work and health with funding from new sources (TCWF 2006).

The California Endowment has also supported efforts to improve health by creating employment opportunities. In 2000, it teamed up with the Rockefeller Foundation to launch

California Works for Better Health, supporting collaboratives in Fresno, Los Angeles, Sacramento, and San Diego to research issues and emerging markets within their regions and develop grassroots efforts to improve access to and the quality of local job opportunities. These efforts could focus on reducing employment barriers (for instance, by offering vocational instruction in English as a Second Language) and encouraging employers to provide a safe working environment and health benefits to their workers. The effort is being evaluated by MRDC. As the initiative sunsets, the Prevention Institute has been engaged to help the collaboratives with the tools they will need to connect their work to other efforts focused on reducing and eliminating health disparities and improving underlying social conditions.

The foundation has also committed significant resources ($50 million) to improve working conditions for farm workers and families, beginning with publication of an unprecedented study, *Suffering in Silence*, in 2000. Since then it has funded direct delivery of health care services to farm workers, model programs that link health services with the provision of safe, decent and affordable housing in rural communities (including a low-interest loan pool), health education programming on Spanish-language radio stations broadcasting in agricultural areas, capacity building for advocacy organizations, research on farm worker health and safety

issues, and public policy development. The most recent program launched by The California Endowment is Poder Popular Para la Salud del Pueblo which focuses on collaborations to advocate for policy and systems change in 10 communities. Promotoras, lay health workers, are working locally to deliver services and create strategies to nurture leadership among farm workers.

Funders are also helping low-income families rise out of poverty by helping them take advantage of federal tax relief and public benefit programs. The Earned Income Tax Credit (EITC) is a refundable tax credit for low- and moderate-income people who work. It can reduce their tax burden; increase their refunds; and, for some, offset other taxes they may pay, such as payroll taxes (Center on Budget and Policy Priorities 2004). Qualified federal income tax filers who are raising children can receive part of their EITC in their paychecks throughout the year, boosting their income; these families receive the rest of their EITC in a check after filing a federal tax return. The credit ranges from just over $380 to over $4,200, depending on income and household characteristics. Nationally, The Annie E. Casey Foundation is a leader in providing information, technical assistance, and financial support for efforts to educate low- and moderate-income populations about tax issues and provide tax preparation assistance. Through its National Tax Assistance for Working Families campaign, the foundation is supporting work in 23 sites to promote greater awareness of tax credits, including the EITC and the Child Tax Credit; provide low-cost or free tax preparation; and encourage the use of tax refunds to help low- and

moderate-income families build assets by contributing to a savings account, starting a business, or purchasing a home.

Local foundations are also playing a key role in catalyzing community-based tax outreach and assistance campaigns. The Quantum Foundation in Palm Beach, Florida, is partnering with the board of county commissioners, the local United Way, and others to educate low-income individuals and families about the EITC and help them claim unclaimed credits in Palm Beach County. Together, the partners supported free tax preparation services at centers that are open during the entire tax season at locations and times that are convenient for working people. In 2005, the effort led to $14 million in total refunds, $6 million in EITC refunds, and saved $1.3 million in fees, increasing household income by 12 percent. The Prosperity Campaign, as it is known, is also serving as a gateway to eligibility for other programs serving low- and moderate-income individuals and families. Three years in, the campaign is now offering services at 40 sites.

Eliminating Environmental Hazards

In 2003, The California Wellness Foundation awarded a $130,000 grant to the Center for Community Action and Environmental Justice (CCAEJ) to help communities in southern California reduce harmful environmental threats. CCAEJ provides local groups with environmental health education programs, helps develop leadership skills, and maps out action plans to motivate local governments and industries to act more responsibly. These partnerships allow CCAEJ to connect with

residents with diverse skill sets such as researching issues, motivating volunteers, and organizing events.

When a group of residents identifies an environmental health threat in their community, CCAEJ provides guidance on developing an effective action plan that includes fostering community-based leadership. CCAEJ leadership development uses a hands-on approach. Each group develops its own strengths, learns new skills, and uses these skills to advance the issue identified. CCAEJ also works with these groups to plan under different scenarios and prepare for a range of responses from opponents. The community groups mentored by CCAEJ have won significant policy changes. For example, in Riverside County, a group successfully mounted a three-year battle against diesel emissions in the community, resulting in action by county planning commissioners to halt the building of additional warehouses in the area and to consider the need for a wider buffer zone between any diesel source and homes and schools. Particulates contained in diesel exhaust emissions are associated with higher rates of asthma and other respiratory problems (TCWF 2005). According to foundation program director Fatima Angeles, the model used by CCAEJ is "particularly effective because it starts with a core group and builds outward. The skills that group members learn are shared over time with others, resulting in an expanded body of capable community leaders willing to tackle environmental health challenges."

A range of environmental hazards threaten residents of some communities in El Paso, Texas and neigh-

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boring Ciudad Juárez, Mexico. The Paso del Norte Health Foundation is working to reduce environmental health risks such as asthma triggers, contaminated water and sanitation, lead, pesticides, uncontrolled solid waste dumping, and other risks to families through its Healthy Homes and Handwashing initiative. The goals of this $3.2 million, five-year initiative were identified through a series of meetings with leaders of regional environmental organizations, academic researchers, and community activists. These binational meetings generated dialogue regarding priority issues as well as effective approaches for addressing them, and set the stage for developing a broad based collaboration (Paso del Norte Health Foundation 2005).

Foundation staff also looked to the lessons learned from past grants to improve environmental health. A 2000 effort, the When Water Works for Health campaign helped improve local sanitation. The foundation's grantee, the Center for Environmental Resource Management (CERM) at the University of El Paso, used school-based education and community-based outreach efforts to improve public awareness of the importance of sanitation and purification of drinking water. The campaign also helped procure and install 300 prefabricated fiberglass latrines in some of the poorest neighborhoods in Ciudad Juárez. The wet, bacterial decomposition technology used in the latrines proved successful in

reducing exposure to waste, however, heat and sun exposure caused the fiberglass units to become brittle and crack over the long-term (Paso del Norte Health Foundation 2005). Using this lesson, foundation and CERM staff members sought a new approach. The result was a partnership with a nonprofit organization building latrines out of cinderblocks or bricks that used an alternative technology to decompose waste. The new latrines were safe and effective. They also stood up to the region's climate. Secondary benefits of this work included a partnership to support a microenterprise toilet building business, as well as workshops and training on how to build latrines and handwashing stations (Paso del Norte Health Foundation 2005).

The San Francisco Foundation employs a multidisciplinary approach to its environmental health grantmaking. For example, to reduce air contaminants produced by idling trucks and buses, the foundation supported the Bay Area Ditching Dirty Diesel Collaborative, a grassroots campaign designed to reduce the level of diesel emissions, contaminants linked to asthma, lung cancer, and other respiratory conditions. Although a law limiting diesel truck idling to only five minutes was implemented in 2004, it had only been loosely enforced. As part of the collaborative's work, residents of San Francisco, Oakland, Richmond, San Leandro, and Sonoma counties

launched a campaign in October of 2005 by passing out 8,000 door hangers to educate truck and bus drivers, as well as residents about the impacts of diesel idling. Increased awareness and grassroots advocacy eventually led elected officials and community and labor leaders to join forces and lobby the California Air Resources Board. As a result, the board passed a new regulation stating that truck drivers asleep in sleeper cabs must now turn off their engines or switch to alternative battery power or a non-diesel fueled engine for overnight and long-term idling.

Fostering Social Connectedness

The Blue Cross and Blue Shield of Minnesota Foundation recently embarked on a major new direction in its work, focusing on the social determinants of health in four focus areas. Social connectedness is one of these (others are early childhood development, housing, and the environment), an interesting choice in a state often considered the nation's most friendly and caring. Yet the Twin Cities region is among the most racially and socioeconomically segregated metropolitan areas in the U.S. (Blue Cross and Blue Shield of Minnesota Foundation 2006a). The foundation's work in social connectedness places its emphasis on the mental health and healthy adjustment of Minnesota's immigrant population. Immigration is up 130 percent in the state since 1990 and it is now home to the country's largest Somali population and its second largest population of Hmong and Liberians. To respond to the needs of these groups, many of them political refugees, the Healthy Together initiative will fund capacity development in the mental health sector in ways that respond to the special needs and cultural beliefs of immigrant communities, capacity development of immigrant-led organizations, and efforts to build trust, exchange, and relationships between immigrants and long-time residents of the areas where they have settled (known as receiving communities). This work is still new; the first grants were made in 2006 to organizations including the Centre for Asians and Pacific Islanders to partner with the Minneapolis public schools to improve mental health and education-related outcomes within the North Minneapolis Hmong community. Another grantee, the Korean Service Center, was awarded $50,000 to help establish a culturally competent assisted living program for Somali elders in public housing in Minneapolis' Cedar-Riverside community. The initiative builds upon prior learning from the foundation's efforts to increase access to and use of preventive medical and dental services by children of foreign-born parents, tribal communities, and other communities of color (Blue Cross and Blue Shield of Minnesota Foundation 2006b).

The Kansas Health Foundation, long interested in the social determinants of health, has also built a reputation for its statewide media campaigns. Launched in January 2001, "Take a second. Make a difference" asked Kansans to make small everyday gestures, even a smile and a wave, that would make a connection between adults and children. The eight-month media campaign was built on the premise, supported by research, that children who are connected to caring adults take better care of themselves, are less likely to engage in risky behaviors, and make greater contributions to their communities. In addition to television and radio spots, newspaper ads, a Web site, and public relations efforts, the campaign included work in almost 30 communities to help them become better places for young people. Surveys of randomly selected community residents found that the campaign's messages were being heard. Nearly all (97 percent) of those surveyed engaged in specific behaviors as a result of their interactions with the "Take a second. Make a difference." effort. Many also reported reaching out to local policymakers, encouraging them to change programs and policies to better serve children. In late 2002, a statewide youth summit culminated with specific commitments by youth and adults to make a difference in their communities (Self Help Network 2002a, 2002b). The foundation's evaluation showed that its work was effective in reinforcing the positive awareness and behaviors of adults who are already concerned about children. Future work will look for success with the harder to reach adult population.

Health funders are even delving into affordable housing as a strategy for fostering social connections, drawing on research that neighborhoods with high rates of home ownership have healthier residents who are more likely to be engaged in civic life. In Portland, Oregon, the Northwest Health Foundation, through its Kaiser Permanente Community Fund, is helping support the Healthy Communities Initiative of HOST (Home Ownership One Street At A Time) Development, Inc. Their goal is to help 53 families in a historically low-income, African American neighborhood become first-time home owners.

Building the Knowledge Base

Finally, health funders are supporting further development of the knowledge base about the impact of social determinants of health and the pathways by which these factors affect human biology. Since 1997, The John D. and Catherine T. MacArthur Research Network on Socioeconomic Status and Health has brought together leading researchers from the fields of psychology, sociology, psychoimmunology, medicine, epidemiology, neuroscience, biostatistics, and economics to create data for use in policy discussion and develop knowledge that can be used to inform social, medical, and public policy interventions. The network has active working groups on the social environment, psychosocial factors, allostatic load (the ability of the body to maintain stability under conditions of change), and developmental and life course effects.

Moving Forward

Many health grantmakers, particularly those with public health backgrounds, understand that the factors affecting health extend far beyond the medical care system and have invested significant resources in health promotion and disease prevention. A number of newer health foundations have even adopted the World Health Organization definition of health as part of their mission and vision statements. Yet relatively few focus their grantmaking on determinants such as race, social class, the adequacy of housing, educational opportunity, environment, and civic engagement.

There are at least three hurdles that a health foundation must scale. First is answering questions about focus and mission. How far should we go as health funders? Is this our job? Will our board, community, and current grantees understand and value such work as a legitimate expression of a health mission? Funders must feel confident in presenting the theory of change by which work in these areas will affect health. They must educate themselves and their communities about the connections. Second, achieving measurable changes in health status can be daunting, both in the time needed to accomplish such changes and in the attribution of such changes to work supported by foundation funding. Grantmakers have to be willing to commit for relatively long periods of time and to look for intermediate outcomes.

Third, health funders cannot go it alone. According to Berkman and Lochner (2002), "public health programs alone cannot ameliorate the social forces associated with poor health outcomes." The complexity of the factors leading to inequalities in health status requires multifaceted and multisectoral action. Moreover, health funders have to reach out to funders working on education, economic development, and civic engagement. For example, community foundations may be important allies in work on social determinants since many have long been interested in social capital. The Social Capital Community Benchmark Survey was fielded in 2000 with support from several of the nation's most prominent community foundations. But while reports about this survey's results lauded the importance of trust, cooperation, and neighborliness in building strong communities, they rarely referred to health as a positive outcome of these factors (Social Capital Community Benchmarking Survey 2001).

Building relationships with these funders will require both learning their language and the policies and practices that define their disciplines, and teaching them about how social factors affect human health.

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Fast Facts

Income

Income inequality in the United States has increased over the past three decades; between 1977 and 1999, the after tax income of the richest 1 percent population more than doubled, while the after tax income for the poorest 20 percent declined by 9 percent. Health improvements for the U.S. population as a whole are due to gains among the higher socioeconomic groups; lower socioeconomic groups continue to lag behind (Institute for the Future 2000; HHS 2000).

Countries with relatively unequal income distributions have higher rates of infant mortality than countries with similar gross income but a more equitable income distribution (Waldmann 1999).

In an analysis of 50 states, the Robin Hood Index (a measure of income inequality based on the distribution of household income) was found to be significantly related to overall homicide, firearm homicide, firearm assault, and robbery (Kennedy et. al 1999).

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Education and Employment

Among U.S. adults between the ages of 25 and 64, the overall death rate for those with less than 12 years of education is more than twice that for people with 13 or more years of education. The infant mortality rate is almost double for infants of mothers with less than a high school education compared to their more educated peers (HHS 2000).

A meta-analysis of 46 epidemiological studies found association between unemployment and many different poor health outcomes including lower self-esteem, higher rates of depression, excess suicides, increased alcohol consumption and even immunological functioning (TCWF 2000).

The relationship between job stress and such conditions as mood and sleep disturbances, upset stomach, headache, and strained personal relationships has been well-documented. Evidence is now mounting that chronic stress, including situations where workers have little control over the job environment, plays an important role in development of cardiovascular disease, musculoskeletal disorders, and psychological disorders (National Institute for Occupational Safety and Health 1999).

Environment

Worldwide, one-quarter of preventable disease is attributable to poor environmental quality. In the U.S., air pollution alone is associated with about 50,000 premature deaths annually as well as an estimated $40 billion to $50 billion in health-related costs (HHS 2000).

Air pollution is widespread and occurs both indoors and out. In 1997, 43 percent of Americans lived in areas designated as having unhealthy levels of ozone. Between 1988 and 1994, more than two-thirds of nonsmokers were exposed to environmental tobacco smoke. In 1995, an estimated 15 million children were exposed to secondhand smoke in their homes (HHS 2000).

In 2001, 20.3 million Americans had asthma. Environmental exposures, such as house dust mites and environmental tobacco smoke, are important triggers of asthmas attacks (CDC 2003).

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Social Capital

Individuals lacking social ties have two to three times the risk of dying from all causes as compared to well-connected individuals; in one large longitudinal study, depressed and socially isolated individuals were four times more likely to have a heart attack than others who were neither depressed nor isolated (Kawachi et al. 1999; Institute for the Future 2000).

In a study of susceptibility to the common cold, increased diversity in individual ties to friends, family, work, and community was found to be significantly related to increased resistance to infection (Institute for the Future 2000).

In surveys of 40 communities participating in the Social Capital Community Benchmark Study, social connectedness was a much stronger predictor of the perceived quality of life than the community's income or educational level. In the five communities with the highest levels of social trust, more than half (52 percent) rated their community as an excellent place to live, the highest possible grade. In the five communities with the lowest levels of social trust, less than one-third (31 percent) felt as good about their quality of life (Social Capital Community Benchmark Survey 2001).

Sources

The California Wellness Foundation, *Reflections on the Connections Between Work and Health* (Woodland Hills, CA: 2000).

Centers for Disease Control and Prevention, Environmental Hazards and Health Effects Program, "Basic Facts about Asthma," <http://www.cdc.gov/asthma/faqs.htm>, 2003.

Institute for the Future, *Health and Health Care 2010: The Forecast, The Challenge* (San Francisco: Jossey-Bass Publishers, 2000).

Kawachi, Ichiro, Bruce P. Kennedy, and Roberta Glass, "Social Capital and Self-Rated Health: A Contextual Analysis," in Ichiro Kawachi, Bruce P. Kennedy, and Richard G. Wilkinson, eds., *The Society and Population Health Reader, Vol. 1, Income Inequality and Health* (New York, NY: The New Press, 1999).

Kennedy, Bruce P., Ichiro Kawachi, Deborah Prothrow-Smth, et al., "Social Capital, Income Inequality, and Firearm Violent Crime," in Ichiro Kawachi, Bruce P. Kennedy, and Richard G. Wilkinson, eds., *The Society and Population Health Reader, Vol. 1, Income Inequality and Health* (New York, NY: The New Press, 1999).

National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, "Stress at Work," NIOSH Publication No.99-101, <http://www.cdc.gov/niosh/stresswk.html#f>, 1999.

Social Capital Community Benchmark Survey, "Community Connected-ness Linked to Happiness and Vibrant Communities," <http://www.cfsv.org/communitysurvey/results4.html>, March 2001.

U.S. Department of Health and Human Services, *Healthy People 2010: Understanding and Improving Health,* 2nd edition (Washington, DC: U.S. Government Printing Office, 2000).

Waldmann, Robert J., "Income Distribution and Infant Mortality," in Ichiro Kawachi, Bruce P. Kennedy, and Richard G. Wilkinson, eds., *The Society and Population Health Reader, Vol. 1, Income Inequality and Health* (New York, NY: The New Press, 1999).

Recommended Reading

Berkman, Lisa F., and Ichiro Kawachi, eds., *Social Epidemiology* (New York, NY: Oxford University Press, 2000).

The New England Journal of Medicine called this book "an extraordinary work of scholarship." Chapters focus on working conditions, social cohesion, discrimination, health behaviors in a social context, depression and mental illness, and health and social policy.

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The California Wellness Foundation, *Reflections on the Connections Between Work and Health* (Woodland Hills, CA: 2000). Available on-line at http://www.tcwf.org/pub_reflections/jun_2000.htm

This publication describes lessons learned by The California Wellness Foundation in its Work and Health Initiative, one of the foundation's initial priority areas. The first phase of the initiative (1995-2000) was funded at $20 million plus an additional $1 million annually for responsive grantmaking. In 2000, the board of directors committed to at least an additional five years of support.

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Fullilove, Mindy, *Root Shock: How Tearing Up City Neighborhoods Hurts America, and What We Can Do About It* (New York, NY: One World/Ballatine, 2004).

Fullilove, professor of psychiatry and public health at Columbia University, makes the case in this book for how old-style urban renewal projects create social and economic disadvantage. Focusing on black neighborhoods in Pittsburgh, Newark, Philadelphia, and Roanoke, Fullilove tells the story through history, statistics, and personal narrative.

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Grantmakers In Health, *Social Inequalities in Health: Keynote Addresses from the 1999 Annual Meeting on Health Philanthropy* (Washington, DC: 1999). Available on-line at http://www.gih.org/usr_doc/49537.pdf

GIH's 1999 annual meeting explored the roots of social inequalities in health. Nicole Lurie of the U.S. Department of Health and Human Services kicked off the meeting with her remarks focusing on the efforts of the federal government, particularly in addressing racial and ethnic disparities in health, and opportunities for collaboration between the public and private sector. Robert Evans of the University of British Columbia set the issue in context with his analysis of multiple sources of data documenting the range of determinants affecting health. Velvet Miller of Children's Futures-New Jersey commented on the possibilities of philanthropy, speaking from the perspective of someone moving from state government into the grantmaking arena.

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Klinenberg, Eric, *Heat Wave: A Social Autopsy of Disaster in Chicago* (Chicago, IL: University of Chicago Press, 2002).

This book tells the story of how social isolation, the institutional abandonment of poor neighborhoods, and the retrenchment of public assistance programs, contributed to more than 700 deaths among the elderly during a week-long wave of unprecedented heat and humidity in Chicago in 1995. Klinenberg is an academic sociologist but writes like a journalist.

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McGinnis, J. Michael and William H. Foege, "Actual Causes of Death in the United States," *Journal of the American Medical Association* 270(18):2207-12, November 10, 2003.

This article is considered by many to be the seminal argument for a population-based approach to health improvement with a strong focus on factors outside the medical care system.

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PolicyLink, *The Influence of Community Factors on Health: An Annotated Bibliography* (Oakland, CA: 2004). Available on-line at http://www.policylink.org/pdfs/AnnotatedBib.pdf

This document contains more than 150 citations for research on how community factors affect health. Funded by The California Endowment, T*he Influence of Community Factors on Health* also nicely summarizes the literature on the determinants of neighborhood health, and comments on the program and policy implications.

The Society and Population Health Reader (New York, NY: The New Press, 1999).

This collection of scholarly articles, reprinted from peer-reviewed journals, is packaged into two volumes. Volume I, *Income Inequality and Health*, was edited by Ichiro Kawachi and Bruce Kennedy of the Harvard School of Public Health. Topics covered include presentation and critiques of the relative income hypothesis, social cohesion, sociobiological translation, and the effects of income across race and gender. Volume II, *A State and Community Perspective*, was edited by Alvin Tarlov, former president of The Henry J. Kaiser Family Foundation and Robert St. Peter of the Kansas Health Institute. Topics covered in this volume include child development, adult health, and perspectives on public policy implications.