Establishing a Holistic Framework to Reduce Inequities in HIV, Viral Hepatitis, STDs, and Tuberculosis in the United States

An NCHHSTP White Paper on Social Determinants of Health, 2010

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention

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Glossary

Health disparity is a particular type of health difference that is closely linked with social or economic disadvantage.

Health equity is the absence of systematic, unfair disparities in health (or determinants of health) among population groups in a social hierarchy or with different levels of social advantage or disadvantage.

Health equity (U.S. Department of Health and Human Services [DHHS] definition) is attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities.

Heath inequity is a difference or disparity in health outcomes that is systematic, unfair, and about which you can do something.

Individual-level risk factors are characteristics of individuals that may explain health status or behavior (e.g., age, sex, marital status).

Social determinants of health (SDH) are the complex, integrated, and overlapping social structures and economic systems that include the social environment, physical environment, and health services; structural and societal factors that are responsible for most health inequities. SDH are shaped by the distribution of money, power and resources at global, national, and local levels, which are themselves influenced by policy choices.

Sources:

U.S. Department of Health and Human Services. Healthy People 2020 Draft. 2009, U.S. Government Printing Office. Available at: http://www.healthypeople.gov/hp2020/advisory/PhaseI/glossary.htm

Braveman, P. and S. Gruskin. Defining equity in health. Journal of Epidemiology and Community Health, 2003. 57(4): p. 254-258.

World Health Organization. Closing the gap in a generation: Health equity through action on the social determinants of health. Report from the Commission on Social Determinants of Health. 2008. http://www.who.int/social_determinants/thecommission/finalreport/en/index.html

EXECUTIVE SUMMARY

In the United States, we have made great strides in reducing the incidence and improving the health outcomes of persons infected with the human immunodeficiency virus (HIV), viral hepatitis, sexually transmitted diseases (STDs), and tuberculosis (TB).[1,2] Our success is a result of advances in surveillance; medical research; and prevention, diagnosis, and treatment. Nevertheless, today there are groups that carry a severe and disproportionate burden of our focus diseases. To address this imbalance, we must complement individual-level interventions, intended to influence knowledge, attitudes, and behaviors, with new approaches that address the interpersonal, network, community, and societal influences of disease transmission and health.[3] Evidence suggests that programs that comprehensively address health where we live, work, learn, and play can have greater impact on health outcomes at the population level than programs utilizing interventions aimed solely at individual behavior change.[4,5] Social and personal differences should not hinder the opportunity for each of us to make healthy choices. As health begins at home, and is influenced by where we live, the jobs we hold, our knowledge of risk, and our support systems, it is critically important that our public health programs acknowledge and address these broader realities and contexts.

We must complement individual-level interventions with new approaches that address the interpersonal, network, community, and societal influences of health.

This white paper outlines the strategic vision of the Centers for Disease Control and Prevention's (CDC's) National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) for reducing health disparities and promoting health equity related to our conditions of interest. The purpose of the white paper is to advance a holistic approach to the design of our public health programs to advance the health of communities and increase their opportunities for healthy living. NCHHSTP is committed to promoting awareness, engagement, and action on the many factors that can affect the health of all of us; to addressing these factors in the policy, practice, and research activities of NCHHSTP; and to building partnerships on every level. This white paper extends and builds on the concepts found in the NCHHSTP social determinants of health (SDH) green paper and incorporates recommendations from the 2008 consultation on SDH.[2,6]

The white paper aims to advance a holistic approach to the design of our public health programs.

The term *social determinants of health* refers to the complex, integrated, and overlapping social structures and economic systems that include social and physical environments and health services. These determinants are shaped by the level of income, power, and resources at global, national, and local levels. They are also often influenced not only through personal choices, but through policy choices as well.[5] NCHHSTP has adopted the conceptual framework of the World Health Organization's Commission on Social Determinants of Health.[5] This framework helps us to better analyze and understand the drivers of health and health inequities in the United States, determine priorities, and target and refocus our intervention efforts.

Social determinants of health refers to the complex, integrated, and overlapping social structures and economic systems that include social and physical environments and health services.

This white paper outlines planned NCHHSTP activities and commitments for 2011–2015 to reduce health disparities related to HIV, viral hepatitis, STD, and TB infections, and promote health equity by addressing the SDH. Six focus areas are identified for priority actions: research and surveillance, communication, policy, programs, capacity building, and partnerships. NCHHSTP will monitor progress in these six areas with the intent of developing a more balanced portfolio that addresses the whole of health, i.e., all factors that can affect the health of a person, group, or community, and reduces health

inequities, with the goal of accelerating reductions in disease incidence and reducing health disparities. Routine monitoring and a continuous feedback loop with our partners (including grantees) will allow us to assess progress and to identify processes and practices that are particularly effective in reducing disease transmission, improving health outcomes, and providing opportunities for better health for all.

We ask our partners to serve as champions of a social determinants approach.

NCHHSTP encourages our partners, grantees, and other relevant stakeholders to join us in this journey to identify the best and most promising options, choices, and resources to ensure that our efforts are placed within a context of promoting good health in every community. This will require concerted, sustained, and coordinated action from many partners: it cannot be achieved by any agency acting alone. We ask our partners to serve as champions; to initiate conversations about the social and structural drivers of our epidemics and how to address them; to build local capacity through innovative strategic collaboration; and to incorporate a holistic view of health that begins in each community and with each individual.

Tuberculosis Treatment in the U.S. Homeless Population

Hospitalization for tuberculosis is most common for persons who are homeless and have HIV infection or no insurance. Lack of access to early medical care coupled with other conditions (e.g., substance abuse) contributes to TB hospitalization. Establishing and utilizing special treatment-housing centers to provide homeless persons with TB with continuous shelter and food during treatment saves hospitalization costs. CDC and partners have recommended these treatment-housing centers since 1992. These centers show similar or even higher TB treatment completion rates as hospitalization.

INTRODUCTION

Background

Some population groups continue to be disproportionately affected by human immunodeficiency virus (HIV), viral hepatitis, sexually transmitted diseases (STDs), and tuberculosis (TB): the rate of chlamydial infection is disproportionately higher among females compared to the rate among males; HIV disproportionately affects men who have sex with men (MSM); syphilis rates are higher in males (especially MSM) than females; gonorrhea rates among females have been slightly higher than rates among males (except for blacks whose rates are higher in males); TB is more prevalent among foreign-born persons, U.S.-born blacks, American Indians, and U.S.-born homeless individuals; the rate of hepatitis B remains highest among blacks and males (especially MSM); and Asian American and Pacific Islanders comprise half of individuals living with chronic hepatitis B in the United States.[7] Such disparities are unfair, pose a significant cost to society in terms of health care needs and lost productivity, and are avoidable.[8] They are also counter to health as a human right.[9] So why are these disparities getting worse?[10-16]

Disparities are unfair, pose a significant cost to society and are avoidable.

Social determinants, which are complex, integrated, and overlapping social structures and economic systems,[17-21] are linked to lack of opportunity and to a lack of resources to protect, improve, and maintain health.[22-24] Structural and societal factors such as social and physical environments, and availability, cost of, and access to health services, create pathways or barriers to good health. These factors are affected by the distribution of power and resources, all of which can be addressed through policy. For example, studies have shown that HIV-infected persons with low literacy levels had less general knowledge of their disease and disease management and were more likely to be non-adherent to treatment than those with higher literacy.[25,26] Studies also show that black MSM at lower income levels are more likely to engage in sexual behaviors that put them at greater risk for acquiring STDs, compared to black MSM with higher income levels.[27,28] Another study found that heterosexual men and women in 23 major U.S. cities living below the poverty line were twice as likely to have HIV infection (2.4%) as those living above it (1.2%), and other social determinants of health (SDH)—including homelessness, unemployment, and low education level—were independently associated with HIV infection.[29]Another study shows that although the burden of hepatitis C infection is greater among some racial and ethnic groups, mortality is highly correlated to the individual's socioeconomic condition.[30] In addition, income was shown to be an important predictor of a lack of health insurance among persons with HIV and, consequently, may be a reason why they are less likely to receive treatment.[31]

Environmental factors, such as housing conditions, social networks, and social support are also key drivers for infection with HIV, viral hepatitis, STDs, and TB. For example, a study among housed and homeless persons with HIV infection found that homeless persons had poorer health status, were less adherent to medication regimens, were more likely to be uninsured, and were more likely to have been hospitalized.[32, 33] Social networks also play a role in fueling the spread of HIV infection and other STDs and have been shown to negatively influence adherence to TB drug therapy.[34-38] Similarities in living conditions are often found among groups with disproportionately high levels of disease.

Environmental factors, such as housing conditions, social networks, and social support are also key drivers for infection with HIV, viral hepatitis, STDs, and TB.

Many of the current approaches to prevention and disease control are focused on individual behavioral risk factors. It is urgent, that these be supplemented to address underlying

We need to go beyond controlling disease on the individual level to addressing social determinants of health.

factors, such as poverty, unequal access to health care, incarceration, lack of education, stigma, homophobia, sexism, and racism. We need to go beyond controlling disease on the individual level and address other contributors to disease, including the social and environmental determinants of health.[39, 40]

The DHHS Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020 recommends using a *health in all policies* approach to address social determinants of population health.[39, 41] *Health in all policies* is a comprehensive approach where all parts of government work toward common goals to achieve improved health for all and reduce health inequities.

Toward this aim, in 2008, the World Health Organization's (WHO's) Commission on Social Determinants of Health called on all governments to address SDH by taking the following steps: "improve the conditions of daily life;" "tackle the inequitable distribution of power, money, and resources;" and "measure and understand the problem and assess the impact of action."[5] CDC's National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) has adopted the WHO framework on SDH to serve as a guide for its activities.

Health in all policies is a comprehensive approach where diverse government agencies work toward common goals to achieve improved health for all.

The recently released United States National HIV/AIDS Strategy (NHAS)[42] has identified "Reducing HIV-Related Disparities and Health Inequities" as one of its three main overarching goals. The strategy acknowledges that disparities in HIV prevention and care persist among racial/ethnic minorities, as well as among sexual minorities. While working to improve access to prevention and care services for all Americans, the NHAS calls for the following steps to help reduce inequities across groups: reduce HIV-related mortality in communities at high risk for HIV infection; adopt community-level approaches to reduce HIV infection in high-risk communities; and reduce stigma and discrimination against people living with HIV.

Addressing Poverty and HIV/AIDS among Young Low-income African American Women

Poverty can increase risk behaviors for HIV and sexually transmitted infections (STI) acquisition. To address this social determinant of health, CDC and others conducted a study to identify components of a microenterprise intervention (i.e., a small, often unregistered, business with very few [<5] employees and seed capital of <$35,000) intended to inform efforts to reduce poverty-related HIV/STI transmission. For low-income, young African American women who are under-employed or unemployed findings suggest that providing training on income-generating activities, coupled with components related to increasing self-esteem, self-efficacy, and business skills and training may result in a decrease in risk behaviors for those infections.

The NHAS is especially clear on the need to move beyond individual interventions to incorporate and combine community level approaches. Key priorities include establishing pilot programs that utilize community models; measuring and utilizing community viral load; and promoting a more holistic approach to health that addresses not only HIV prevention among those at high risk, but also the prevention of HIV related co-morbidities, such as STDs and hepatitis B and C. The strategies recommendations for addressing stigma and discrimination build upon this holistic approach by encouraging communities to affirm support for people living with HIV; promoting public leadership of people living with HIV; promoting public health approaches to HIV prevention and care by reviewing HIV-specific criminal statutes to ensure that they are consistent with current knowledge of HIV transmission; and strengthening enforcement of civil rights laws. These key recommended actions are consistent with a social determinants of health approach that are likely to yield benefits beyond HIV prevention.

NCHHSTP has been working to address SDH in its policies, research, and programs. Social and structural approaches to disease prevention include syringe services programs, providing access to health care, and encouraging HIV testing. NCHHSTP has developed several structural approaches, such as initiating the *Act Against AIDS* community mobilization campaign; convening an external consultation on the Social Determinants of Health and HIV, Viral Hepatitis, STD, and TB Prevention (December 2008); and establishing the Program Collaboration and Service Integration effort—a mechanism for organizing and blending interrelated health issues, activities, and prevention strategies to facilitate comprehensive delivery of services. NCHHSTP and partners have influenced policy in the areas of HIV name reporting, syringe services, travel ban on persons infected with HIV entering the United States, criminalization of HIV transmission, and the National HIV/AIDS Strategy. Also, along with CDC colleagues, NCHHSTP has a number of ongoing research studies to examine structural approaches (e.g., a housing and health study [with the Department of Housing and Urban Development], a microfinance project among African American women, and curricula development for medical schools at Historically Black Colleges and Universities).

NCHHSTP steps to incorporate an SDH approach into program design include:

- *SDH Green Paper*
- *External Consultation*
- *SDH White Paper*

A Systematic Approach

NCHHSTP is committed to taking a leadership role in incorporating a SDH approach to public health program design. To date, three concrete steps have been taken.

In 2008, NCHHSTP issued a green paper (a discussion document intended to stimulate debate and launch a process of consultation) on SDH.[2] The paper described health disparities in infectious diseases that NCHHSTP monitors; detailed how SDH impact these diseases; summarized models of social determinants; facilitated broader discussion on the most appropriate SDH framework for NCHHSTP; and suggested a series of next steps for NCHHSTP to address this area of concern.

This white paper sets a direction and framework to develop a comprehensive, science-based, and collaborative approach to addressing SDH.

In December 2008, following the green paper, NCHHSTP hosted an external consultation on *Accelerating the Prevention and Control of HIV/AIDS, Viral Hepatitis, Sexually Transmitted Diseases and Tuberculosis*, in Atlanta, Georgia. More than 100 partners from within CDC and other Federal agencies, non-governmental organizations, academia, private foundations, state health departments, and community stakeholders attended the consultation.

Together, participants identified short- and long-term priorities for addressing social determinants of HIV, viral hepatitis, STDs, and TB that would be appropriate for NCHHSTP to undertake. Participants provided suggestions in four key public health activity areas: public health policy, data systems (surveillance and epidemiology), agency partnerships and capacity building, and prevention research and evaluation. The participants also recommended that NCHHSTP adopt the WHO framework for SDH.[5] Activities and suggestions from this consultation are incorporated into this white paper. The consultation report can be found at http://www.cdc.gov/socialdeterminants.

This white paper is the third step and builds upon and refines the concepts presented in the green paper and input from the external consultants. It describes NCHHSTP's proposal for addressing SDH for 2011 through 2015 in five areas: research and surveillance, communication, policy, programs, and capacity building, and outlines opportunities to collaborate with partners in each area of focus. It sets the direction and framework to develop a comprehensive, science-based, and collaborative approach to promoting health for the individual, the community, and the nation. Ethical and human rights considerations will be foundational to this approach.[43]

The intended audience for this white paper includes NCHHSTP staff; tribal, state, local, and territorial health departments; community-based organizations; and other entities funded by NCHHSTP. Secondary audiences include the research community, other public health partners both domestic and global, other CDC National Centers and Offices, the U.S. Department of Health and Human Services (DHHS), and other federal agencies.

Social Determinants of Health

Definition

Five determinants of population health are generally recognized in the scientific literature: biology and genetics (e.g., sex), individual behavior (e.g., alcohol or injection drug-use, unprotected sex, smoking), social environment (e.g., discrimination, income, education level, marital status), physical environment (e.g., place of residence, crowding conditions, built environment [i.e., buildings, spaces, transportation systems, and products that are created or modified by people]), and health services (e.g., access to and quality of care, insurance status).[21] Historically, many public health efforts have focused on individual behaviors. SDH typically refers to the latter three categories (i.e., social environment, physical environment, and health services), which are not controllable by the individual but affect the individual's environment. These three determinants are the focus of this white paper.

Determinants of Population Health

- *Biology and genetics*
- *Individual behavior*
- *Social environment*
- *Physical environment*
- *Health services*

Vision for Change

NCHHSTP aims to improve people's lives through a more holistic approach to health by maximizing the health impact of public health services, reducing disease prevalence, and ensuring healthier choices and opportunities for every community. We will actively promote awareness, engagement, and action on SDH, striving toward fairness in policies, services, access, and environmental conditions.

Rationale

Greater improvements in population health outcomes can be achieved by addressing both SDH as well as individual-level risk factors.[4, 5] The WHO Commission on Social Determinants of Health has called on national governments and organizations at all levels to address SDH to achieve health equity.[5] Addressing SDH is part of the proposed DHHS Healthy People 2020 framework and NCHHSTP's Strategic Plan, 2010–2015.[44,45]

Informing the Base Realignment and Closure Process: A Health in All Policies Approach

Health in All Policies is an innovative approach to address complex health challenges and improve population health through integrative cross-agency efforts. Currently, CDC is working with the Georgia Health Policy Center (GHPC), a public health institute, to inform the redevelopment of Ft. McPherson military base, scheduled to close in 2011. The goal of the CDC-funded project is to identify ways that CDC, as a public health agency, can contribute to making the redeveloped area a healthier community. The collaborative process engaged the Ft. McPherson Local Redevelopment Authority and local community partners to explore opportunities for a healthier community by emphasizing design elements that facilitate activity (i.e., sidewalk and bike paths) and encourage optimal nutrition (i.e., healthy food options).

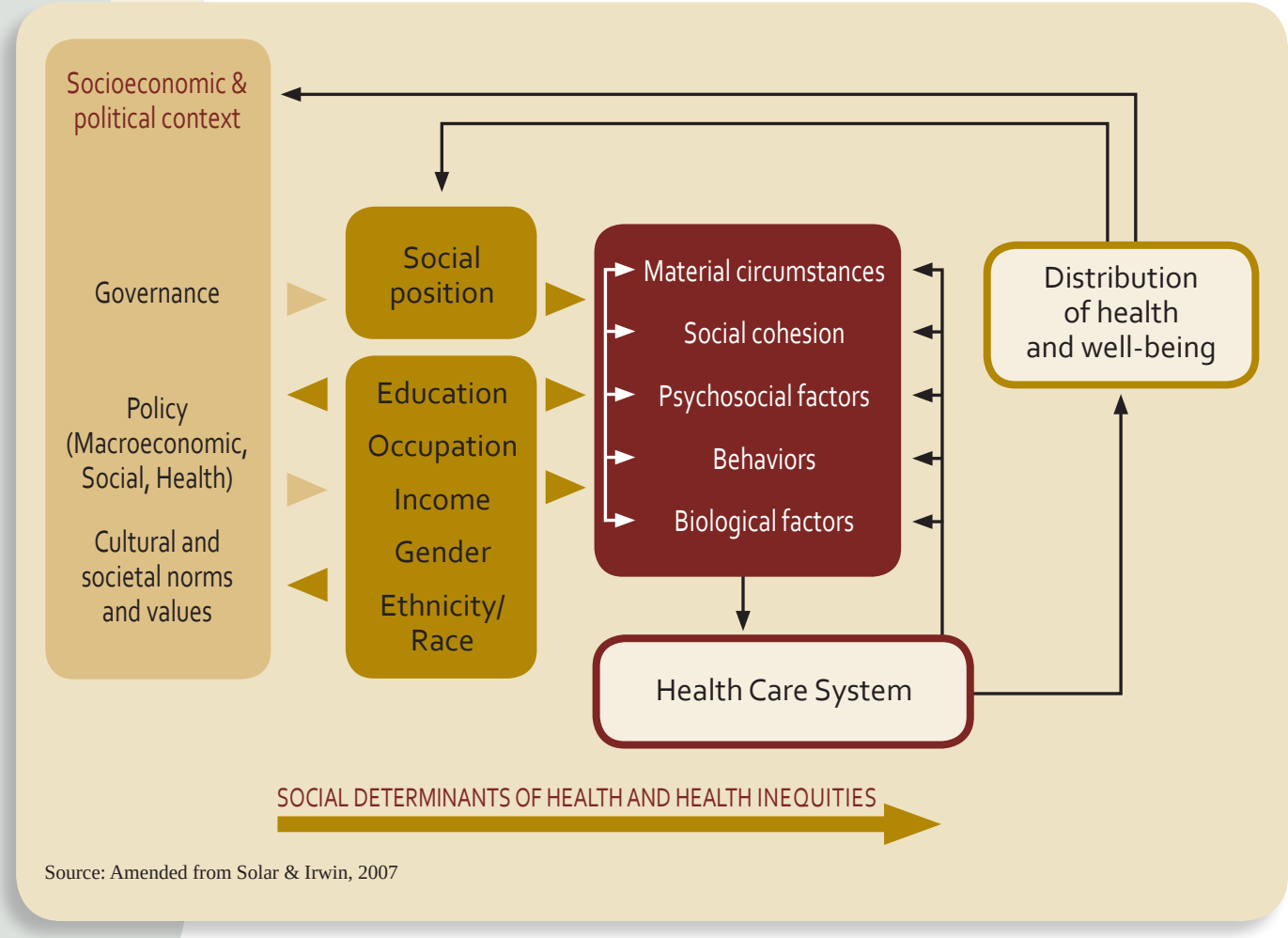
Theoretical Framework

The WHO Commission on SDH has called on national-level governments and organizations to address SDH.

The WHO model provides a conceptual framework for understanding the socioeconomic and political context; structural determinants and socioeconomic position; intermediary determinants (including material circumstances, social-environmental circumstances, behavioral and biological factors, social cohesion, and the health care system); and the impact on health equity and wellbeing measured as health outcomes. An additional intermediary determinant for diseases of interest to NCHHSTP is the correctional system, given the high prevalence of HIV and STDs among correctional populations and the disproportionate number of racial and ethnic minorities represented.[46]

NCHHSTP has adopted the WHO framework on SDH.

Figure 1: World Health Organization's Commission on Social Determinants of Health Conceptual Framework



Source: Amended from Solar & Irwin, 2007

Applying the Framework

Traditionally, the disease triangle model (i.e., agent, host, and environment) has provided a conceptual framework for understanding disease interactions, intervention determination, and outcome measurement. In the case of infectious disease interventions, prevention is based on disrupting the life cycle of the infectious agent by breaking at least one side of the triangle. While this model allows for consideration of other factors, it does not specifically address SDH. Therefore, when applying this model to HIV, viral hepatitis, STDs, and TB, the goal is to broaden the focus of historical interventions to include the environment as it relates to the host. In other words, a successful intervention would take into consideration the social and physical environments of the vulnerable population, rather than the environmental conditions as related to the survival of the infectious agent.

Traditional public health interventions focus on disrupting the life cycle of infectious disease.

The WHO's conceptual framework for SDH helps to analyze and understand the drivers of health and health inequities in the United States, including how determinants of health interact, influence inequities, determine priorities, and target points for intervention. Addressing SDH can improve the health of the population, including reducing health inequities; a primary goal for NCHHSTP. WHO has identified four areas for intervention: addressing inequities in socioeconomic factors, intermediary determinants of health, the effects of health status on socioeconomic position, and factors related to the health care system.[23]

Structural interventions may include policy, technological, environmental, or economic changes.

Communities and Health Equity

CDC works with partners to help ensure all communities have environments that support good health including local grocery stores that carry fresh fruit and vegetables. In Silicon Valley, California, the local YMCA REACH US program began Proyecto Movimiento to reduce diabetes inequities in the Latino population by ensuring that neighborhood groceries stock fresh produce and communities receive health promotion information. In Chicago, the University of Illinois at Chicago, a Center of Excellence in the Elimination of Health Disparities, and a CDC REACH grantee, targeted the supply and affordability of healthy food to identify areas that need improvement, with the goal of reducing type 2 diabetes and cardiovascular disease among African Americans and Latinos in these areas.

Intermediary determinants may be addressed by providing screening, linkage to care, and prevention services.

NCHHSTP will identify and support policies and activities that address structural and intermediary determinants, including interventions that address the health care and correctional systems and that reduce the impact of HIV, viral hepatitis, STDs, and TB on individuals and society. Structural interventions may include policy, technological, environmental, or economic changes. Intermediary determinants may be addressed by providing screening, linkage to care, and prevention services to disadvantaged populations. NCHHSTP will commit to implementing existing, or developing where they do not exist, evidence-based approaches to improve health outcomes for all and address the social determinants of health.

Reducing health inequities will require a broad portfolio of policy, research, and interventions to decrease exposure, lessen vulnerability, and ultimately decrease disease transmission. The recent passage of the Patient Protection and Affordable Care Act of 2010 offers new opportunities to apply this more holistic approach to our prevention efforts. NCHHSTP also recognizes the importance of considering local communities and local processes and intends to work closely with partners to develop relevant policies and activities.

Reducing High Rates of Congenital Syphilis in Hispanic Women

From 2002–2007, Arizona ranked among the top 5 U.S. states for rates of congenital syphilis (CS). The majority of cases diagnosed were in newborns of Hispanic women living in Maricopa County, many of whom were non-citizens. CDC conducted a rapid ethnographic assessment and identified community and structural factors that were contributing to persistent high rates of CS among Latinas, including barriers to prenatal care for Latinas, such as fear of using services related to anti-immigration raids, lack of insurance coverage for non-US citizens, lack of awareness of the benefits of prenatal care, and inconsistent screening of pregnant women for syphilis in ER settings. These findings prompted an increase in information sharing with Latina women, health care providers, and emergency room doctors.

NCHHSTP Efforts to Address SDH

In addition to the current methods, new approaches are needed to address the high burden of HIV, viral hepatitis, STDs, and TB among those who are disproportionately affected. While effective interventions that address individual risk factors and behaviors exist,[47] to ensure good health in all communities requires a broader portfolio that looks at social and environmental factors as well. Such new approaches are needed to reduce the impact of poverty, unequal access to health care, incarceration, lack of education, stigma, homophobia, sexism, racism, and other factors that result in disproportionate health impact. Stigma is especially complicated. Although other public health issues may be equally challenged by other SDH, the populations affected by other SDH do not experience the same level of stigma as do sexual and gender minorities. Programs addressing factors that can affect health can have greater impact on health outcomes at the population level than programs utilizing only interventions aimed at individual behavior change.[4, 5] Reduction in disease transmission and optimization of health and functioning for a larger population can also lower health care costs and increase productivity for all.[16]

New approaches are needed to reduce the impact of social determinants that result in disproportionate health impact.

NCHHSTP has progressively addressed social determinants through various activities, including convening stakeholder meetings and consultations to gather input to inform strategic directions; supporting offices of health equity at the Center and Division levels; establishing Health Equity, MSM, and Corrections Center-wide workgroups; publishing a special issue on SDH in *Public Health Reports*, a peer-reviewed journal; and establishing an SDH website to serve as a resource for internal and external partners. In addition, NCHHSTP has influenced the NHAS and policy on HIV and STD testing and reporting, funded structural interventions, engaged partners and affected communities in the development of policies and programs, and promoted program collaboration as a strategic imperative. Other CDC Centers have also addressed SDH with a variety of activities, including

- Convening a National Expert Panel on SDH Equity to provide recommendations for CDC's efforts to achieve health equity.
- Assisting in founding the Federal Collaborative on Health Disparities Research.
- Publishing guidance on the measurement of health disparities.
- Co-leading the development of a topic area on SDH for *Healthy People 2020*.
- Developing a *Reactions to Race Module* that assesses socially assigned race, race consciousness, and perceptions of differential treatment. This module was used in 16 states in the 2002–2007 Behavioral Risk Factor Surveillance Study (BRFSS) and is included in the 2009–2010 NHANES.
- Developing six new questions for the 2009 BRFSS to assess access to food and housing, financial security, time at work, and participation in civic activities to quantify socioeconomic effects on health.
- Engaging, in partnership with the Health Resources and Services Administration (HRSA) and the National Library of Medicine, in the Community Health Status Indicators Project, which produces county-level reports for all 3000+ U.S. counties, including variables from nine federal data systems (e.g., health, environment, census).

NCHHSTP is progressively addressing social determinants through various activities.

- Supporting interventions related to SDH through its local and state-based programs, including Healthy Communities and Racial and Ethnic Approaches to Community Health, and supporting research to assess strategies that address SDH including efforts focused on homelessness and poverty.
- Developing *Promoting Health Equity: A Resource to Help Communities Address the Social Determinants of Health* for community-based organizations and public health practitioners.

Additional examples of how colleagues CDC-wide are addressing SDH are also presented in story boxes throughout this paper.

NCHHSTP intends to establish a strong foundation for SDH work through research and surveillance.

NCHHSTP intends to build on these activities and, in collaboration with its partners, establish a strong foundation for SDH work through research and surveillance to understand the issues, test interventions, and monitor the outcomes; address in policies and programs structural drivers of conditions that contribute to poorer health outcomes for some; and raise public awareness of SDH to engage communities and partner organizations.

Lack of Sanitation in Arctic Linked to Infectious Diseases

Rural Alaska Native children suffer from some of the world's highest rates of invasive pneumococcal disease (IPD). CDC's Arctic Investigation Program is conducting research to find out why. A 2007 study showed higher respiratory and skin infection rates for those who lacked in-home running water and sanitation service. A second study in 2009 showed that the high IPD rates in these children are also associated with a lack of in-home piped water. Additional studies are underway to clarify the association between water service and infectious diseases and demonstrate the effects of sanitation infrastructure improvements.

2011–2015 Priority Actions for Addressing SDH and HIV, Viral Hepatitis, STDs, and TB Prevention

Research and Surveillance

NCHHSTP is committed to a science-based approach in all of its activities. Incorporating SDH into existing activities must be evidence-based and have a strong science component. Currently, data gaps exist for this area, especially for smaller geographic areas (smaller than a state). In areas where evidence does not exist, efforts should focus on developing and evaluating new approaches to garner evidence and obtain surveillance data. NCHHSTP intends to advance the science of SDH by making a commitment to

Incorporating SDH into existing activities must be evidence-based and have a strong science component.

Fiscal Year (FY) 2011 Priorities

- Explore measures of health equity and SDH for inclusion into research and surveillance efforts.
- Support publication of SDH topical special issues in peer-reviewed journals.
- Systematically analyze and catalog existing research to determine social determinants related to NCHHSTP focus diseases and to guide intervention efforts and identify gaps in knowledge.
- Prepare and disseminate guidance on SDH definitions, measures, indicators, and data sources for NCHHSTP programs and science. Use of geographic information systems will be critical to monitoring SDH and disease outcomes simultaneously.

FY 2012–2015 Priorities

- Develop and refine methodologies to obtain, analyze, and present data on SDH for NCHHSTP diseases using existing or novel supplemental surveillance systems.
- Establish routine scientific for which include national and international experts to share and discuss cutting edge SDH issues.
- Design, implement, and assess modeling and place-based demonstration projects that examine the impact of combining prevention interventions (as recommended in the NHAS) or promote program collaboration and service integration.
- Develop, implement, and evaluate SDH surveillance and a public health prevention research agenda, which includes laboratory science, for addressing health inequities in HIV, viral hepatitis, STDs, and TB through comprehensive and multi-level approaches.
- Convene stakeholders to share best practices for SDH research and surveillance.
- Synthesize and translate research findings on SDH related to diseases that NCHHSTP monitors to inform public health action.
- Disseminate data on HIV, viral hepatitis, STDs, and TB that routinely evaluate absolute and relative disparities and SDH.
- Support research on and evaluation of policies and processes that affect health equity and pose barriers to achieve health equity.

Health Communication and Marketing

NCHHSTP is committed to advancing knowledge and awareness of SDH.

NCHHSTP is committed to developing and deploying communication activities to increase knowledge and awareness of SDH and to support stakeholder action. Two key steps of the strategy are first to understand how best to outline for different audiences the impact of social determinants on the populations NCHHSTP serves, and secondly, to use networked media technologies to connect stakeholders with multiple sources of online information about SDH to reinforce conversations that further the adoption of SDH frameworks in public health intervention designs. NCHHSTP commits to advancing knowledge and awareness of SDH by working to

FY 2011 Priorities

- Create a strategic communication plan using science-based approaches to support action by partners and program staff.
- Include social determinants and health equity messages in NCHHSTP presentations and policy documents.

FY 2012–2015 Priorities

- Conduct environmental scanning and a literature review to assess current communication efforts regarding SDH, assess attitudes and beliefs around SDH among different audiences, and effectively market SDH concepts and opportunities for action to different stakeholders.
- Develop messages and materials that are culturally and linguistically appropriate and relevant for all populations, to include addressing factors that generate or reinforce stigma.

Health Policy

NCHHSTP is committed to addressing health inequities and SDH through policy and funding opportunity announcements.

NCHHSTP is committed to finding opportunities to address health inequities and SDH through policy (not only health policy, but policy of all sectors) and funding opportunity announcements (FOAs). NCHHSTP realizes policy changes can have quick, wide-spread, and lasting impact and, therefore, makes the commitment to

FY 2011 Priorities

- Address social determinants and health equity in NCHHSTP FOAs, where appropriate; specific sections of FOAs for adaptation include purpose, activities, and evaluation criteria.

FY 2012–2015 Priorities

- Track investments by health determinant categories (e.g., health services, social environment, biology and genetics, individual behavior, and physical environment).
- Prioritize investments to reduce health inequities and address SDH (e.g., collaborate with other CDC National Centers on Community Transformation Grants under health care reform and implement the NHAS which calls for targeted funding to geographic areas consistent with the HIV epidemic).
- Develop disease screening and treatment recommendations that promote system approaches to reduce inequities.
- Identify, implement, and evaluate statutory and regulatory opportunities to address health inequities.

Prevention Programs

NCHHSTP is committed to addressing SDH in its program portfolio. Prevention programs are at the heart of NCHHSTP's mission and are often the most visible aspects of our work. The current portfolio of prevention programs primarily, although not exclusively, focuses on reducing individual behavioral risk factors for HIV, viral hepatitis, STDs, and TB. NCHHSTP recognizes that a more balanced portfolio, incorporating SDH into interventions and programs, would potentially have a greater positive impact on health outcomes across all of the disease areas. NCHHSTP commits to

NCHHSTP will include structural, social, and other determinants in its existing prevention program portfolio.

FY 2011 Priorities

- Include structural, social, and other determinants in its existing prevention program portfolio.
- Encourage partners to refine existing prevention programs to address SDH, thereby creating a more balanced portfolio of prevention programs.

FY 2012–2015 Priorities

- Devise new prevention programs that specifically address SDH, including demonstration projects of community and combination prevention interventions, as stated in the NHAS.
- Encourage partners to develop novel prevention programs aimed at specific SDH as well as programs that address the interplay between social determinants and other determinants of population health.
- Develop a workforce that values work addressing SDH and that is adequately trained and informed about SDH issues in the field.

Researching Policies Impacting Child Maltreatment

CDC's research on social determinants of health is ongoing. One particular area of study looks at state-level programs and policies. This study identified more than 50 policies with potential to impact the social determinants of child maltreatment, including family and medical leave extensions; access to high-quality child care and preschool; access to health care, including contraception, mental health and substance abuse services; economic supports; and funding for affordable housing. Addressing poor health through new strategies and policies can reach broader segments of the population, address the underlying causes, and generate population-level impacts on child maltreatment and other health concerns.

Capacity Building

NCHHSTP is committed to enhancing national capacity to address SDH in science, in program, and with partners. Successful adoption and implementation of a new approach requires a clear understanding of what is involved, its purpose and usefulness, and how it will impact the day-to-day activities of those adopting it. Although addressing SDH is not a new concept, it has not been widely adopted in the United States, by NCHHSTP, or by other National Centers within CDC. Embracing activities that address SDH will require ongoing training and support of NCHHSTP; tribal, state, local and territorial health departments and governments; community-based organizations; other CDC National Centers and Offices; DHHS; and other NCHHSTP partners.

Successful adoption and implementation of a new approach requires an understanding of what is involved, its purpose and usefulness.

To advance awareness on SDH and promote acceptance and incorporation of SDH in activities, NCHHSTP commits to working with current and potential partners, those mentioned above, as well as other DHHS Agencies, other Departments, and partners of all entities to fully integrate SDH into health protection work throughout the United States. In addition, NCHHSTP will engage and continue to engage colleagues from existing CDC workgroups including, Health and Human Rights, Racism and Health, Social Determinants of Health Equity, Sexual and Gender Minorities, and Health Equity along with both the Subcommittees on Health Disparities and on Ethics of the Advisory Committee to the Director of CDC and the Public Health Ethics Committee. Some examples of Divisions and Offices within CDC from which NCHHSTP can learn and with which it can collaborate on SDH include the Division of Adult and Community Health; the Division of Nutrition, Physical Activity and Obesity; the Office of Surveillance, Epidemiology and Laboratory Services; and the Division for Heart Disease and Stroke Prevention. In addition, NCHHSTP commits to work with NCHHSTP-funded prevention training centers and community-based organizations, as well as interested others, to

Embracing activities that address SDH will require ongoing training and support.

FY 2011 Priorities

- Develop materials with definitions, rationale, and examples of activities regarding SDH.
- Provide SDH materials to NCHHSTP partners, including the Prevention Training Centers, and partners of the NHAS to enhance SDH knowledge and build capacity to implement activities.

FY 2012–2015 Priorities

- Provide guidance to help partners address SDH in NCHHSTP activities.
- Include SDH and health equity training in new employee orientation, project officer training, and training for partners, including policy makers and health care professionals, and communities.

Partnership Activities

NCHHSTP pledges to develop and carry out the strategies outlined here in consultation with partners.

NCHHSTP is committed to seeking opportunities to enhance collaboration with partners. NCHHSTP values highly its partners and their input and pledges to develop and carry out the strategies outlined here in consultation with affected communities; territorial, tribal, state and local health departments; the CDC/ HRSA Advisory Committee on HIV and STD Prevention and Treatment; the Office of Infectious Diseases Board of Scientific Counselors; DHHS Interagency Viral Hepatitis Working Group; DHHS HIV Coordinating Committee; the Advisory Council for the Elimination of Tuberculosis; HRSA; the Substance Abuse and Mental Health Services Administration ; the National Institutes of Health; other governmental, non-governmental, and community-based organizations; NCHHSTP and CDC workgroups and committees; and Division Directors and branches. NCHHSTP commits to

FY 2011 Priorities

- Engage key stakeholders in SDH policy development particularly as it focuses on the human, social, and economic costs to society.
- Provide guidance, tools, and technical assistance to partners in communicating about SDH.

FY 2012–2015 Priorities

- Strengthen, diversify, and augment the number of partners (domestic and global) who can serve as champions to address SDH.
- Strengthen and build partnerships with communities affected by HIV, viral hepatitis, STDs, and TB.
- Foster collaboration within CDC and among other federal and DHHS partners to advance research on SDH. (e.g., collaborate with federal partners on implementation of the NHAS).

Air Pollution and Asthma

Air pollution is another factor that can affect health and can be distributed unequally to communities across the country. The Public Health Institute-Regional Asthma Management and Prevention (RAMP) program is working to address this issue and many others that relate to asthma among African Americans and Latinos in low-income communities in the San Francisco Bay Area. The program promotes strategies to reduce asthma through a broad and comprehensive approach, ranging from clinical management to environmental protection. RAMP's environmental strategies have lead to partnerships with communities inequitably affected by air pollution as well as public health, community-based organizations, schools, medical providers, environmental health and justice groups.

Tracking Our Progress

NCHHSTP is committed to the ongoing monitoring and evaluation of SDH activities and expects a similar commitment from the entities it funds. NCHHSTP intends to monitor progress toward the planned activities in the six focus areas (i.e., research and surveillance, communication, policy, programs, capacity building, and partners) with the aim of achieving a more balanced portfolio where social determinants are being addressed and health inequities reduced. NCHHSTP will rely on its partners to provide feedback and input to select, refine, and improve the methodologies, channels, and policies employed. Routine monitoring and a continuous feedback loop will allow NCHHSTP to assess how it can better incorporate SDH and identify processes and practices within and outside of NCHHSTP that are particularly effective for removing barriers to implementation. NCHHSTP has three goals related to evaluating SDH activities:

NCHHSTP commits to ongoing monitoring and evaluation of SDH activities and expects a similar commitment from partners.

- Develop an evaluation plan for activities in consultation with key stakeholders within CDC and external partners to monitor intended outcomes, including primary evaluation questions, indicators, and data sources.
- Monitor the number and type of SDH-related activities occurring among grantees.
- Monitor internal NCHHSTP progress on SDH-related activities and their effect on reducing inequities.

Monitoring and evaluation involve the use of evaluation questions, process measures, and performance indicators. Process measures assess program functions at NCHHSTP and in funded jurisdictions. Performance indicators help show the degree to which program targets have been achieved. Process measures and performance indicators collectively allow programs to compare actual outcomes with anticipated outcomes and to determine whether an activity is on schedule, is implemented as planned, and obtains the expected outcomes. Programs should monitor activities and consider the following suggested evaluation questions:

Evaluation Goals Related to NCHHSTP SDH Activities

- *Develop an evaluation plan*
- *Monitor activities*
- *Monitor internal progress*

- To what extent are research, surveillance, and programs addressing social determinants to reduce health inequities? What are the barriers to addressing SDH?
- Which SDH are being addressed for the focus disease areas in NCHHSTP?
- What is the impact of addressing SDH on prevention and health outcomes? Are there reductions in disparities in HIV, viral hepatitis, STD, and TB morbidity and mortality?

CDC's Framework for Program Evaluation in Public Health provides a detailed description of how to approach monitoring and evaluation activities.[48]

Activities for Partners to Consider

NCHHSTP encourages our funded partners and grantees as well as other relevant stakeholders to consider incorporating activities that address social determinants to reduce health inequities. Entities applying for and receiving NCHHSTP funds in the future will be expected to respond to FOAs as they relate to social determinants (particularly structural and policy interventions) and health equity and to report on SDH activities at intervals specified in the FOAs. The following are ways in which partners can incorporate an SDH approach into their activities:

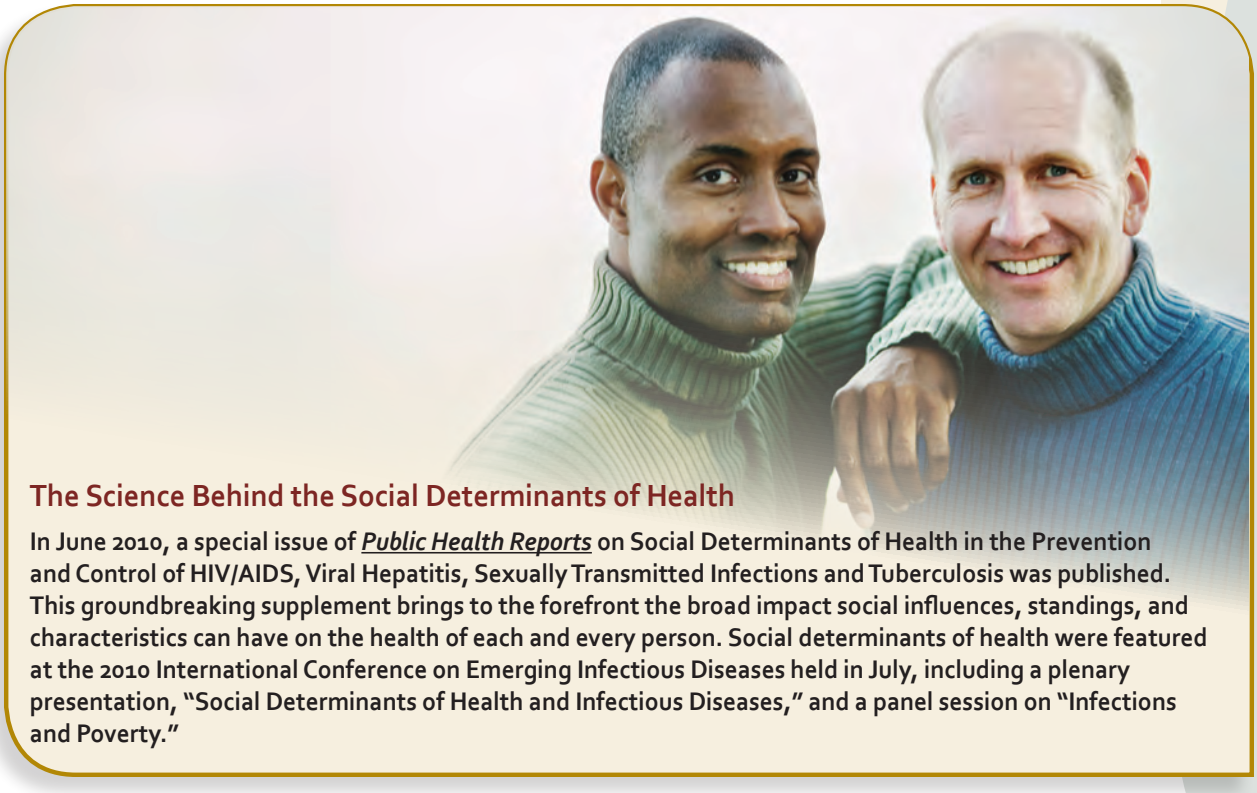
Entities working with NCHHSTP will be expected to respond to FOAs as they relate to social determinants.

Leadership

- Serve as champions in addressing SDH and identify senior leaders in the organization to become champions as well.
- Lead others in the organization to understand why social determinants should be addressed and how to incorporate social determinants in day-to-day work.
- Adopt policies that address SDH in the organization, including identifying priorities, assessing progress toward meeting objectives derived from those priorities, and reporting the progress on a regular basis (e.g., in annual reports).

Research and Surveillance

- Support and request funding for SDH research to advance the science of the field and to provide evidence for effective interventions and communication strategies.
- Incorporate SDH measures in surveillance systems.



The Science Behind the Social Determinants of Health

In June 2010, a special issue of *Public Health Reports* on Social Determinants of Health in the Prevention and Control of HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections and Tuberculosis was published. This groundbreaking supplement brings to the forefront the broad impact social influences, standings, and characteristics can have on the health of each and every person. Social determinants of health were featured at the 2010 International Conference on Emerging Infectious Diseases held in July, including a plenary presentation, "Social Determinants of Health and Infectious Diseases," and a panel session on "Infections and Poverty."

Communication

- Include social determinants and health equity messages in external and internal presentations and communications.

Policy

- Expect entities funded and supported by the organization to address SDH in the work they do.
- Address social determinants in FOAs the organization releases.

Programs

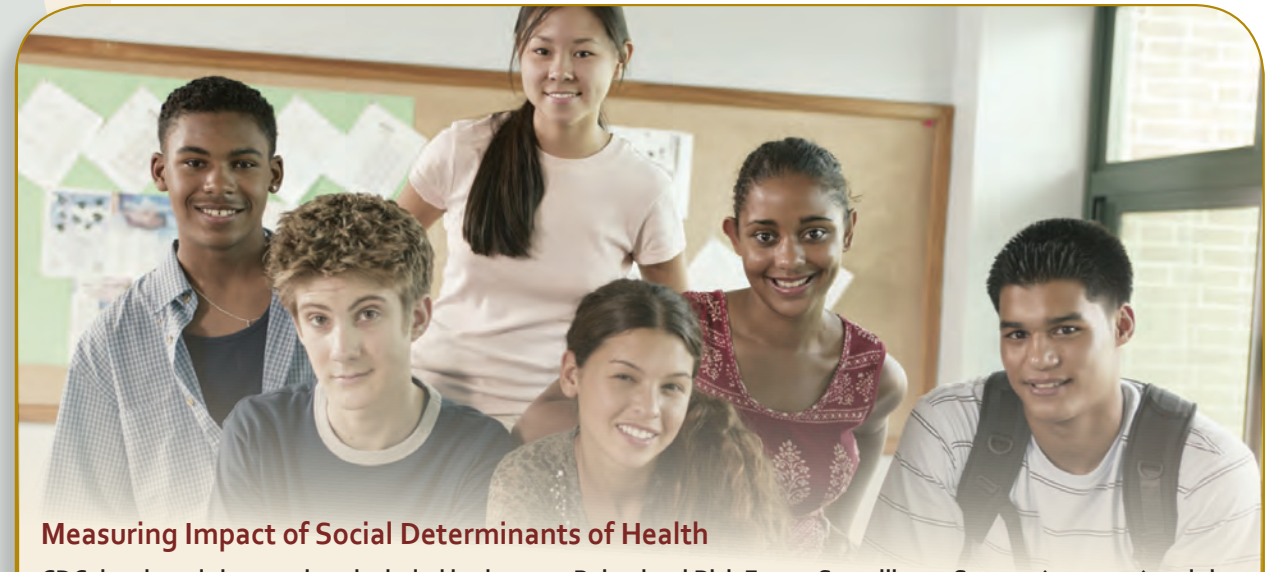
- Address structural, social, and other determinants in the organization's prevention program portfolio.

Capacity Building

- Educate local organizations, policy makers, health care professionals, and partners about SDH and what they can do to address them and reduce health inequities.

Partners

- Review, assess, and actively diversify partners, collaborators, and stakeholders engaged in the prevention of HIV, hepatitis, STDs, and TB to ensure appropriate expansion and greater impact of our prevention policies and practices.



Measuring Impact of Social Determinants of Health

CDC developed six questions included in the 2009 Behavioral Risk Factor Surveillance System (13 states) and the REACH US risk factor survey (28 communities) to gather data on the relationship between health and everyday concerns about nutritious food, access to housing, financial security, time at work, and participation in civic activities. These six questions are presented as the survey's social context module and are intended to provide insight into contextual effects on the health of individuals and inform ways to improve and eliminate health disparities. These measures describe conditions associated with health behaviors, health status, and outcomes.

Summary

NCHHSTP is committed to address SDH to reduce health inequities in HIV, viral hepatitis, STDs, and TB. The evidence is clear: SDH significantly impact health outcomes. Accordingly, with this white paper, NCHHSTP encourages the SDH approach in order to achieve a more balanced portfolio of prevention interventions to complement existing individual, partner and network approaches used in the prevention and control of HIV, hepatitis, STDs and TB in the United States at the national, territorial, tribal, state and local levels.

NCHHSTP encourages an SDH approach to complement existing individual, partner and network approaches.

CDC acknowledges the substantial SDH work that has been done by partners both domestically and globally. NCHHSTP would like to build on these accomplishments by implementing the activities outlined in this white paper, advancing SDH science, using inspiring and dynamic communication strategies, and employing effective policies. The hallmark of this work will be a stronger, more diverse set of partners; an expanded evidence-based prevention portfolio that reflects the broad range of determinants that impact health outcomes; a workforce well informed about SDH; and ultimately a healthier population in all communities nationwide.

The hallmark of this work will be stronger, more diverse partners and an expanded evidence-based prevention portfolio.

REFERENCES

1. Centers for Disease Control and Prevention (CDC). National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. *2007 Disease Profile*. Atlanta, GA: CDC; 2009:1-56.

2. Centers for Disease Control and Prevention (CDC). Social determinants of health among persons disproportionately affected by HIV/AIDS, viral hepatitis, sexually transmitted diseases and tuberculosis: Impact and approaches to eliminate health disparities—Green Paper. Atlanta, GA: Department of Health and Human Services, CDC, December 2008.

3. Dean HD and Fenton KA. Addressing the social determinants of health in the prevention and control of HIV/AIDS, viral hepatitis, sexually transmitted infections, and tuberculosis. Public Health Reports. 2010;125 (Supp 4):1-5.

4. Frieden, TR. A framework for public health action: The health impact pyramid. Am J Public Health. 2010;100:590-595.

5. World Health Organization. Closing the gap in a generation: Health equity through action on the social determinants of health. Report from the Commission on Social Determinants of Health. 2008. Available at: http://www.who.int/social_determinants/thecommission/finalreport/en/index.html.

6. Centers for Disease Control and Prevention (CDC). Addressing social determinants of health: Accelerating the prevention and control of HIV/AIDS, viral hepatitis, STD and TB. External consultation meeting report. Atlanta, Georgia: CDC; April 2009. Available at http://www.cdc.gov/socialdeterminants/.

7. Centers for Disease Control and Prevention (CDC). Health disparities in HIV/AIDS, viral hepatitis, sexually transmitted diseases and tuberculosis in the U.S.: Issues, burden and response. Atlanta, GA: CDC, November 2007. Available at: http://www.cdc.gov/nchhstp/healthdisparities/.

8. Hart J, Williams DR. Toward health equity—the cost of U.S. health disparities. Ann Arbor, MI: Altarum Institute Research Report. 2009:39-48.

9. United Nations. Universal declaration of human rights, 1948, Article 25. Available at http://www.ohchr.org/EN/UDHR/Pages/Introduction.aspx.

10. Ford ES, Ajani UA, Croft JB, Critchley JA, Labarthe DR, et al. Explaining the decrease in U.S. deaths from coronary disease, 1980-2000. N Engl J Med. 2007;356:2388-2398.

11. Harper S, Lynch J, Burris S, Davey Smith G. Trends in the black-white life expectancy gap in the United States, 1983-2003. JAMA. 2007;297:1224-1232.

12. Krieger N. Proximal, distal, and the politics of causation: What's level got to do with it? Am J Public Health. 2008;98:221-230.

13. Meara ER, Richards S, Cutler DM. The gap gets bigger: Changes in the mortality and life expectancy, by education, 1981-2000. Health Aff (Millwood). 2008;27:350-360.

14. Pappas G, Queen S, Hadden W, Fisher G. The increasing disparity in mortality between socioeconomic groups in the United States, 1960 and 1986. N Engl J Med. 1993;329:103-109.

15. Singh GK, Siahpush M. Widening socioeconomic inequalities in US life expectancy, 1980-2000. Int J Epidemiol. 2006;35:969-979.

16. Banks J, Marmot M, Oldfield Z, Smith JP. Disease and disadvantage in the United States and in England. JAMA. 2006;295:2037-2045.

17. McKinlay JB. A case for refocusing upstream—The political economy of illness. In Applying Behavioral Science to Cardiovascular Risk, edited by AJ Enelow and JB Henderson. 1975. Washington, D.C. American Heart Association.

18. McKeown T. The modern rise of population. 1976. New York; Academic Press.

19. Evans, R., Barer, M., Marmot M. Eds. 1994. Why are some people healthy and others are not? The determinants of health populations. New York, NY: Aldine de Gruyter.

20. Marmot M. Epidemiology of socioeconomic status and health: Are determinants within countries the same as between countries? Annals of New York Academy of Sciences 1999;896(1):16-29.

21. Tarlov AR. Public policy frameworks for improving population health. Annals of the New York Academy of Sciences. 1999;896:291-293.

22. Marmot M., Wilkinson R. Eds.1999. Social determinants of health. New York: Oxford.

23. World Health Organization. Towards a conceptual framework for analysis and action on social determinants of health. Discussion paper for the Commission on Social Determinants of Health. May 5, 2005. Available at: http://www.acphd.org/healthequity/healthequity/documents/WHOConceptualFrame-1.pdf.

24. Satcher, D. Ethnic disparities in health: The public's role in working for equality. PLos Medicine Journal. 2006;3:1683-1685.

25. Waite KR, Paasche-Orlow M, Rintamaki LS, Davis TC, Wolf MS. Literacy, social stigma, and HIV Medication Adherence. J Gen Intern Med. 2008;23:1367-1372.

26. Osborn CY, Paasche-Orlow M, Rintamaki LS, Davis TC, Wolf MS. Health literacy: An overlooked factor in understanding HIV health disparities. Am J Prev Med. 2007; 33:374-378.

27. Peterson JL, Coates TJ, Catania JA, Middleton L, Hilliard B, Hearst N. High-risk sexual behavior and condom use among gay and bisexual African-American men. Am J Public Health. 1996;82:1490-1494.

28. Mays VM and Cochran SD. High risk HIV-related sexual behaviors in a national sample of U.S. black gay and bisexual men. Abstract WS-C07-2. IX International Conference on AIDS. Berlin, Germany, June 6-11,1993.

29. Denning P, DiNenno E. Communities in crisis: Is there a generalized HIV epidemic in impoverished urban areas of the United States? Abstract WEPDD101. *XVIII International AIDS Conference*, Vienna, Austria, July 18-23, 2010.

30. Nguyen GC, Thuluvath PJ. Racial disparity in liver disease: Biological, cultural, or socioeconomic factors. Hepatology. 2008; 47:1058-1066.

31. Diaz T, Chu SY, Conti L, Nahlen BL, Whyte B, et al. Health insurance among persons with AIDS: Results from a multistate surveillance project. Am J Public Health. 1994;84:1015-1018.

32. Kidder DP, Wolitski RJ, Campsmith ML, Nakamura GV. Health status, health care use, medication use, and medication adherence among homeless and housed people living with HIV/AIDS. Am J Public Health. 2007;97:2238-2245.

33. Marks SM, Taylor Z, Ríos Burrows N, Qayad M, Miller B. Hospitalization of homeless persons with tuberculosis. Am J Public Health. 2000;90(3):435-438.

34. Klovdahl AS. Social networks and the spread of infectious diseases: The AIDS example. Soc Sci Med. 1985;21:1203-1216.

35. Aral SO, Hughes JP, Stoner BP. Sexual mixing patterns in the spread of gonococcal and chlamydial Infections. Am J Public Health. 1999; 89:825-833.

36. Adimora A, Schoenbach V. Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. JID. 2005;191(Suppl 1):S115-S122.

37. Stratford D, Ellerbrock TV, and Chamblee S. Social organization of sexual-economic networks and the persistence of HIV in a rural area in the USA. Culture, Health and Sexuality. 2007; 9(2), 121-135.

38. Sumartojo E. When tuberculosis treatment fails: A social behavioral account of patient adherence. Am Rev Respir Dus. 1993;147:1311-1320.

39. U.S. Department of Health and Human Services. The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020. July 26, 2010.

40. U.S. Department of Health and Human Services. Healthy People 2020. Available at: http://www.healthypeople.gov/hp2020/.

41. World Health Organization. Adelaide Statement on Health in all Policies. 2010 Available at: http://www.who.int/social_determinants/en/.

42. The White House Office of National AIDS Policy. *National HIV/AIDS Strategy for the United States*. Washington, DC: The White House Office of National AIDS Policy; 2010

43. Principles of the ethical practice of public health. New Orleans, LA: Public Health Leadership Society, 2002 version 2.2.

44. U.S. Department of Health and Human Services. The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020, Phase I Report, Recommendations for the Framework and Format of Healthy People 2020. October 28, 2008. Available at: http://www.healthypeople.gov/hp2020/advisory/PhaseI/PhaseI.pdf.

45. Centers for Disease Control and Prevention. Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Strategic Plan 2010-2015, February 2010:13-14. Available at: http://www.cdc.gov/nchhstp/.

46. Hammett TM, Kennedy S, Kuck S. National survey of infectious diseases in correctional facilities: HIV and sexually transmitted diseases. Prepared for Justice System Research, National Institute of Justice and Centers for Disease Control and Prevention, Atlanta, Georgia; January 19, 2007. Available at: http://www.ncjrs.gov/pdffiles1/nij/grants/217736.pdf.

47. Centers for Disease Control and Prevention (CDC). HIV/AIDS Prevention Research Synthesis Project. 2009 compendium of evidence-based HIV prevention interventions. Atlanta, GA: CDC, December 2009, Revised. Available at: http://www.cdc.gov/hiv/topics/research/prs/evidence-based-interventions.htm.

48. Centers for Disease Control and Prevention. Framework for program evaluation in public health. MMWR. 1999;48(No. RR-11):1–40.