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Leveraging Social and Structural Determinants of Health at the Centers for Disease Control and Prevention: A Systems-Level Opportunity to Improve Public Health

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Abstract

Context: Social and structural determinants of health (SDOH) have become part of the public health and health care landscape. The need to address SDOH is reinforced by morbidity and mortality trends, including a recent multiyear decrease in life expectancy and persistent health disparities. Leadership on SDOH-related efforts has come from public health, health care, private philanthropy, and nongovernmental entities.

Strategy: The Centers for Disease Control and Prevention (CDC) has been addressing SDOH through both disease- or condition-specific programs and crosscutting offices. Guidance from public health partners in the field has led the CDC to consider more strategic approaches to incorporating SDOH into public health activities.

Implementation: The CDC's crosscutting SDOH Workgroup responded to external recommendations to develop a specific vision and plan that aims to integrate SDOH into the agency's infrastructure. The group also sponsors CDC forums for sharing research and trainings on embedding SDOH in programs. The group created a Web site to centralize CDC SDOH research, data sources, practice tools, programs, and policies.

Progress: The CDC has shown strong leadership in prioritizing SDOH in recent years. Individual programs and crosscutting offices have developed various models aimed at ensuring that public health research and practice address SDOH.

Discussion: Building sustainable SDOH infrastructures in public health institutions that reach across multiple health topics and non-health organizations could increase chances of meeting public health morbidity and mortality reduction goals, including decreasing health disparities.

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Although public health priorities and socioeconomic trends will change over time, experience suggests that social and structural factors will continue to influence the public's health. The CDC and state, tribal, local, and territorial public health institutions have played important leadership roles in the system of community and service organizations that interface with communities they mutually serve to address SDOH. Continued capacity-building could help grow and sustain an SDOH infrastructure that advances this work.

Keywords

CDC; health equity; social determinants of health; structural determinants of health; systems-level approaches

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In recent years, we have witnessed an expanding shift in mindset on effective approaches to improving public health, specifically emphasizing the importance of social and structural determinants of health (SDOH).[*,1,2] This movement is evident in public and private spheres and includes the nation's lead public health agency, the Centers for Disease Control and Prevention (CDC).

Morbidity and mortality trends, including a steady decrease in life expectancy[3]—with the first 6 months of 2020 abruptly declining by 1 year[4]—and persistent health disparities,[5,6] underscore the importance of extending public health practice to better address systemic factors. Such factors include the social and economic conditions that can shape and differentially allot opportunities for good health. The disproportionate COVID-19 morbidity and mortality burden experienced by certain racial and ethnic minority populations is a compelling reminder of the need for ongoing expansion of public health approaches that address SDOH.[7]

Addressing social and structural factors that can lead to health disparities and adverse health outcomes is often carried out at the policy or system level, which lends itself to crosscutting approaches.[1] A systems perspective for health considers the multiple sectors outside of health that together with health care and public health impact morbidity and mortality.[1] For example, conditions of housing—a component of a larger system—can influence health by increasing or decreasing risks for such conditions as lead poisoning, asthma, and other respiratory infections.[8] Substantial evidence shows that sole or predominant use of disease-specific or clinical interventions will not close health gaps or advance health equity in the United States.[9–11]

Despite considerable energy around SDOH, the role of public health in tackling these determinants has continued to evolve and be further elaborated upon.[12] The status of public health work on SDOH reflects not only the ever-changing nature of disease processes and sources of injury but also the dynamic character of the social environments where people

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[*]Organizations do not all use the same definitions for social and/or structural determinants of health (SDOH) but definitions all include similar components. To be most inclusive, we use "social" and "structural" determinants of health. World Health Organization's definition specifically references both social and structural components: the SDOH are *conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies, and political systems. These circumstances are shaped by the distribution of money, power, and resources at global, national, and local levels.*

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live, work, and learn. Structural influences, such as macroeconomic and social policies, shift constantly, often in response to changes in culture and societal values.[9] This flux might be one factor that makes it challenging to define an appropriate role for public health in addressing SDOH amid changing factors that are often perceived as lying outside its purview. Furthermore, barriers to collaboration or the traditional focus on single health conditions or outcomes can limit the extent to which those factors are addressed.[11–14] Yet, they all make up the context within which health problems central to public health exist.

This discussion article, by the CDC SDOH crosscutting workgroup ("the Workgroup"), considers selected contexts and prospects for supporting, linking, and leveraging CDC's diverse SDOH efforts that could affect structural and system changes. It articulates the Workgroup's thoughts regarding developments, opportunities, and avenues that could amplify and expand existing capacity and impacts on public health practice and outcomes across the nation. The article briefly characterizes (1) growing public and private leadership engagement in SDOH-centered efforts; (2) SDOH efforts at the CDC and how they have been integrated into public health practice; and (3) how emerging SDOH work that considers up-front the larger system in which health problems exist could enhance efforts to eliminate health disparities and advance health equity.

Leadership on SDOH

Many leaders from across the public health and health care enterprise consider addressing SDOH essential to both reversing troubling trends in life expectancy[3,4] and achieving lasting improvement in health status.[15,16] Citing a few examples, the often-referenced Health Impact Pyramid described by former CDC Director Dr Thomas Frieden depicts socioeconomic interventions as having the greatest impact on health.[17] Through its 2019 President's Challenge, the Association of State and Territorial Health Officials (ASTHO) urges governmental health officials to invest in building resilient communities with an SDOH focus.[18] The National Association of County & City Health Officials (NACCHO) Health Equity and Social Justice program provides an array of resources to advance capacity of its members to confront the root causes of inequities.[19]

While health care providers largely emphasize linking individual patients to social support services,[20,21] some health care organizations are focusing on addressing upstream SDOH. For example, Kaiser Permanente's Southern California High Impact Hiring Initiative partnered with Goodwill Industries to expand job options for people facing employment barriers, such as "little-to-no work history, a physical disability, lack of housing or transportation, expensive child care, or a criminal history."[22] Kaiser explains that such investments can lead to better economic security so that individuals and families can meet their basic needs for health and well-being.[22]

Private philanthropic foundations (eg, Robert Wood Johnson Foundation [RWJF], Kresge Foundation, Kellogg Foundation, de Beaumont Foundation) and other nongovernmental entities contribute significant resources toward addressing SDOH and are among the leading voices promoting SDOH approaches for public health and health care. The RWJF's Culture of Health Action Framework commits the Foundation to a "national agenda to improve

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health, equity and well-being."[23] Kresge Foundation's Emerging Leaders in Public Health initiative has supported more than 100 public health department leaders across the country to design and carry out innovative initiatives, many of which have helped shift from traditional public health practices to broader approaches that engage the larger socioeconomic system in which health exists.[24] In 2016, the National Academies of Sciences, Engineering, and Medicine (NASEM)—Population Health Improvement Roundtable recognized that when the health care workforce does not reflect the diversity of the community it serves, the effectiveness of health care services can be undermined.[25] In developing a framework for educating the health professional workforce about SDOH, NASEM included growing the diversity of its workforce as critical to success.[25]

These and other dedicated investments in SDOH have helped shift the prevention narrative from focusing largely on proximal influences on health (eg, obesity, smoking, safe sex) to prioritizing upstream social and structural determinants.

Growth of SDOH at the CDC

Within CDC's commitment to putting science into action to end epidemics, prevent disease and injury, ensure domestic preparedness, and secure global health, SDOH work can be found across the agency. CDC is organized around a disease- or condition-specific structure,[26] but SDOH are crosscutting, which means that SDOH work does not sit in a single CDC office or center. Rather, staff affiliated with CDC centers, institutes, and offices (CIOs) have customized ways to address them.[27] Such approaches have ranged from development of frameworks that help users build capacity to address SDOH to direct support of community-driven programs that work explicitly with nontraditional partners. For example:

- The National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) incorporates an SDOH lens on broad-based, community-level prevention programs in one of its longest lasting programs—Racial and Ethnic Approaches to Community Health (REACH) initiative.[28] (See example 1.)
- The National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) began working on SDOH over a decade ago. An external consultation in 2008[29] led to the center's 2010 white paper, Establishing a Holistic Framework to Reduce Inequities in HIV, Viral Hepatitis, STDs, and Tuberculosis in the United States.[30]
- The National Center for Injury Prevention and Control (NCIPC) developed the Essentials for Childhood Framework to help boost capacity of health professionals to address adverse childhood experiences and other SDOH.[31] (See example 2.)
- The Agency for Toxic Substances and Disease Registries developed the CDC Social Vulnerability Index (also known as CDC SVI), which is a database, index, and mapping tool that helps local officials identify and locate communities that will most likely need support before, during, and after a hazardous event. The CDC SVI comprises 15 social factors, including poverty, lack of vehicle access,

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and crowded housing, that affect the ability of communities to prepare for, respond to, and recover from hazardous events.[32,33]

Furthermore, several of CDC's crosscutting centers and offices have worked to enhance public health's capacity to address SDOH using systemic approaches that are relevant across health domains, diseases, or topics. For instance:

- The Office of Minority Health and Health Equity (OMHHE), the steward of the *Healthy People* Initiative SDOH Topic Area, helped develop the place-based SDOH framework,[34] which was first presented in *Healthy People 2020* and is continued in *Healthy People 2030*.[35]
- The Center for State, Tribal, Local, and Territorial Support (CSTLTS), the agency's liaison to state, tribal, local, and territorial (STLT) health departments, supports a number of programs that prioritize incorporation of SDOH such as the National Academy for Leadership in Public Health, Public Health Accreditation, Public Health Law, and Community Health Assessment and Improvement Planning.[36]
- The Office of the Associate Director for Policy and Strategy (OADPS) developed the Health Impact in 5 Years Initiative (HI-5),[37] which includes evidence briefs highlighting 14 nonclinical, community-wide interventions that have evidence reporting positive health impacts, results within 5 years, and cost-effectiveness or cost savings during the lifetime of the population or earlier; 6 of the 14 identified interventions in HI-5 address SDOH.

Guidance and Perspective From Public Health Partners in the Field

To support its role of providing leadership to the field, CDC consulted 2 external advisory groups during recent years—the STLT Subcommittee and the Health Disparities Subcommittee, both part of the then active Advisory Committee to the Director of CDC (ACD),[38] a Federal Advisory Committee.[39] From the start, these subcommittees each recognized opportunities for the CDC to increase support to public health organizations across the country in addressing SDOH. Subsequently, they each made a series of formal recommendations related to health equity and SDOH, which were adopted by the ACD.[40,41] (see Table) For example, the STLT Subcommittee through efforts of one of its subgroups, the SDOH Think Tank,[42] recommended that the CDC develop a clear vision and plan for addressing SDOH and health inequities to help health departments identify ways to include SDOH as a core part of public health infrastructure.[43] Similarly, the Health Disparities Subcommittee recommended that CDC build community capacity to implement, evaluate, and sustain programs and policies that promote health equity, especially in communities at highest risk.[44] This subcommittee considered the lack of resources for community capacity building to be a barrier for SDOH-related program development.[44] The guidance from these groups targeted opportunities beyond a more traditional focus on specific diseases or conditions and reinforced the importance of addressing SDOH within the broader goals of eliminating health disparities and achieving health equity. The deliberations and recommendations from CDC partners helped bolster subsequent increased emphasis on SDOH within the agency. The recommendations were also consistent with external

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movement toward a shift in approach to public health that recognizes the importance of SDOH.[22–24]

Expanded SDOH Efforts

The SDOH-related external recommendations to the ACD led to development of the CDC SDOH Crosscutting Workgroup,[†] which, since early 2014, has consisted of representatives from CSTLTS, OADPS, and OMHHE with more recently added membership from other CIOs engaged in SDOH work. The Workgroup has specifically explored ways to enhance the capacity of CDC, STLT public health agencies, and health system partners to identify, monitor, and address SDOH. It initially sought to both increase awareness of existing CDC SDOH-focused efforts and promote incorporation of SDOH into CDC activities where relevant integration had yet to occur. In 2015, the Workgroup launched CDC's SDOH Web site,[27] providing for the first time a centralized location that highlights the agency's SDOH-related resources in multiple categories, including non-health data sources, programs, tools for action, and policies. A searchable research section[27] was added to the site in 2017, easing access to CDC's SDOH-related, peer-reviewed publications, which included more than 425 listings for a 4-year period as of early 2020.[27] Since its launch in 2015, the SDOH Web site has consistently received a high volume of traffic, including more than 306 220 visits to the home page in 2020.

For longer-term impact and with input from the STLT Subcommittee, the Workgroup developed a strategic plan[‡] for its work aimed at growing capacity to incorporate SDOH in public health practice. It embraced a vision in which SDOH *are seen as integral to the mission of public health because SDOH are understood to be a vital bridge between reducing health disparities and achieving health equity*. To pursue this vision, the Workgroup formulated the following goal to inform its work: *To achieve a social norm change where social/structural determinants are part of the fabric of public health programs, policy, surveillance, and research at a level that is appropriate*.

Integration of SDOH into CDC's work has steadily increased both within CIOs and as a result of the Workgroup's active pursuit of this goal. Building on its initial work, the Workgroup continued to identify and raise awareness of the many ways CDC was already incorporating SDOH into its public health practice. Furthermore, to grow SDOH capacity within CDC, the Workgroup initiated internal capacity-building efforts intended to foster idea sharing, colearning, and crosscutting collaboration, such as the following:

- Hosting the "SDOH Conversations with CDC Authors" series, which offers bimonthly opportunities for CDC scientists to discuss with peers their SDOH-focused journal articles and consider what new research would increase public health's impact on SDOH—and thus on overall health, health disparities, and inequities.

[†]Leaders of 3 CIOs (CSTLTS, OMHHE, and OADPS) appointed specific members from their units to form an informal, internal SDOH crosscutting workgroup ("the Workgroup") to respond to recommendations from the STLT Subcommittee of the Advisory Committee to the director of the CDC.

[‡]As part of its response to the STLT Subcommittee recommendations, the Workgroup developed an internal document to strategically guide its activities: *Incorporating Social and Structural Determinants of Health (SDOH) in Work Across CDC*, updated January 2019.

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- Holding quarterly peer-led sessions to explore methods for SDOH research, which have focused on such topics as implications of machine learning for health equity and how to measure health disparities.
- Training CDC staff on SDOH to become strong stewards of social and structural determinants in the context of traditional public health practice; trainings have ranged from a 1-day intensive workshop for CDC staff to introductory webinars for entry-level public health professionals in CDC's Public Health Associate Program (PHAP), now a standard part of their orientation.
- Sponsoring SDOH internships to support SDOH-related Workgroup program and research activities.
- Providing technical assistance and consultation to help CDC and US Department of Health & Human Services (HHS) staff incorporate SDOH into their activities.

In more recent years, the CIOs have continued to enhance their SDOH efforts, many of which have actively engaged Workgroup members. For example, in October 2019, 3 units of CDC (NCHHSTP, NCIPC, and the Office of the Deputy Director for Infectious Diseases) formed an internal, cross-agency Homelessness and Public Health Working Group. The importance of this effort became apparent in March 2020 when CDC was able to quickly make available resources that support people experiencing homelessness to plan, prepare, and respond to the coronavirus disease pandemic.[45] In July 2020, the NCCDPHP completed development of a framework that articulates the vision and role for the center's work on SDOH, including specific descriptions and activities for 5 SDOH prioritized for chronic disease prevention: built environment, community-clinical linkages, food insecurity, social connectedness, and tobacco-free policy.[46] In the 2021 Omnibus bill, the NCCDPHP was awarded funds for an SDOH Pilot Program to support state, local, territorial, and tribal jurisdictions to develop Social Determinants of Health Accelerator Plans.[47] In August 2020, CDC released the *COVID-19 Response Health Equity Strategy: Accelerating Progress Towards Reducing COVID-19 Disparities and Achieving Health Equity*.[48] This strategy includes a focus on SDOH that create barriers to COVID-19 mitigation practices and contribute to the disproportionate burden of COVID-19 on racial and ethnic populations.

These crosscutting and condition-specific activities describe just some of CDC's ongoing efforts to address SDOH within public health practice. The combination of increased internal CDC capacity-building and attention to SDOH across the agency has planted important seeds for SDOH efforts within the CDC and public health practice.

Emerging SDOH Work Within the CDC and Public Health Practice

CDC continues to look for ways to sustain incorporation of SDOH in public health practice with capacity-building and implementation of new approaches that address SDOH.[49,50] Presidential Executive Orders published in January 2021—*Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*[51] and *Ensuring an Equitable Pandemic Response and Recovery*[52]—could signal new support for these efforts at the CDC.

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Research suggests that public health increases likelihood of success in meeting its goals when routinely engaging new partnerships and multisector approaches that reflect the larger system within which public health exists,[53,54] also a key premise to meeting SDOH objectives in *Healthy People 2030*.[35] Moreover, while public health agencies throughout the country have adopted nontraditional practices that address SDOH,[55,56] they likely will continue to look to CDC for support in articulating, sustaining, and improving such efforts. Examples of crosscutting strategies—which consider the larger system within which health exists—have begun to emerge:

Applying creative approaches to cross-sector collaboration:

Following a nontraditional path of cross-sector collaboration has been emerging at CDC over recent years.[28,37] Such collaboration acknowledges diseases and conditions are part of a larger set of social and physical factors, which could lead to reinforcing, adapting, or incorporating practices of other sectors to achieve public health goals (eg, supporting community efforts to improve transportation options, promoting use of low-income home improvement grants).[37] CDC is learning from and supporting state health departments that address risk and protective factors shared with other sectors (eg, housing, transportation) by sharing evidence of health impact from the growing practice of braiding and layering (or blending) funds from multiple sources.[57–59] Braiding and layering is defined as combining funding from different sources to support public health efforts to achieve specific aims.[57] In partnership with ASTHO, CDC also has learned about successful braiding and layering practices from states such as Rhode Island, Colorado, and Washington[57] and shared these strategies with other states. These examples have begun to help state and local health departments explore practices for successful funding innovation and transformation.[57] Such alternative approaches could simultaneously help promote goals of both public health and other sectors. They also have potential to reduce prevalence of multiple diseases[60,61] even if funds are attached to particular disease-specific programs.[57] (See example 3.)

Collaborating with health care:

Consistent with CDC's priority to build partnerships across the populations it serves,[71] public health agencies have continued to collaborate strategically with the health care system, which increasingly considers support of social needs an important part of patient care and is a growing priority of the Centers for Medicare & Medicaid Services (CMS).[72] For example, the CMS is supporting screening of social needs using a number of recently finalized standardized patient assessment data elements for health literacy, transportation, and social isolation in select post-acute care provider settings.[73] The CMS is also exploring alternative care models, such as the Maternal Opioid Misuse (MOM) model, in which health care providers coordinate clinical care and other support services critical for health, well-being, and recovery for pregnant and postpartum women with opioid use disorder and their infants.[74] Focusing on the social needs of individual patients is one important complement to addressing social and structural determinants at the population level.[75] Investments such as the MOM model, which is set up for health care providers to help clients meet individual social and economic needs, are likely to find greatest success when coupled with interventions that address the availability and quality of community-level

infrastructures and systems whose services are intended to support individuals who need them.[75]

Monitoring SDOH trends that reflect health equity:

Routine identification and monitoring of health equity indicators that cut across diseases and conditions—including non-health measures—are considered important for understanding which practices most affect health and reduce disparities. The nascent CDC Indicators of Health Equity Project ("Indicators Project"), which was initiated on counsel of the Health Disparities Subcommittee of the ACD, aims to help CDC focus on health outcomes and determinants in a way that will drive action to increase opportunities for health and advance health equity.[76] As a result of the Indicators Project, CDC will possess a set of health equity indicators that cuts across categorical concerns and will be of use to most CDC programs. Similar strategies to collect and monitor data can be applied at state and local levels.

Considering socioeconomic/contextual issues in public health practice:

Prevention efforts may further benefit if public health leaders at all levels recognize and grapple with emerging socioeconomic and other contextual issues such as those incorporated in the World Health Organization (WHO) Framework on SDOH.[9] CDC's recent addition of the workgroup focused on homelessness exemplifies such recognition. Such structural issues can affect multiple diseases and conditions,[54] therefore, favoring systems thinking and crosscutting approaches. CDC and STLT public health leaders will continue to face complex social and structural forces that can affect health and public health practice, such as the following:

- *Changing demographics in the United States*, like its growing proportion of immigrants,[77,78] an aging population,[79] and increasing diversity with 4 in 10 Americans identifying with a racial or ethnic group other than White.[79]
- *Homelessness and housing insecurity*, such as the 1.45 million people in the United States who used homeless shelter services at some point during 2018.[8,80–82]
- *Structural racism*, as increasingly understood through such infrastructural factors as persistent residential segregation, discriminatory incarceration, and disparate health care quality and access.[83]
- *Food insecurity*, which affected 37.2 million people in 2018[84] and may have affected more than 50 million people in 2020—including 17 million children—because of COVID-19.[85]
- *Income insecurity*, including an estimated 34 million Americans who lived in poverty in 2019.[86]

Although public health priorities and socioeconomic trends will change over time, as noted at the 2019 WHO Strategic Meeting on SDOH,[87] years of experience suggest that social and structural factors will continue to influence the health of the public.[1,2,9] The COVID-19 pandemic has demonstrated such influence.[7,48,85] Public health leaders at all levels likely could benefit from enhanced capacity to recognize and respond to contextual changes and

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their inter-relationships with public health practice. Intentional efforts by public health agencies—at all levels—to build SDOH into their infrastructures in ways that reach across multiple areas of work, may well create opportunities to positively affect their overall missions to reduce morbidity and mortality.

Conclusion

Public health practice has ample opportunities to continue to find ways to embed SDOH. It is the Workgroup's perspective that CDC's leadership role in public health, coupled with the SDOH-related groundwork it has laid to date, exemplifies how an SDOH lens can be incorporated into public health core functions as well as emerging disease challenges. Such leadership can also bolster STLT health departments seeking to do the same. Building sustainable SDOH infrastructure and practices into public health has the potential to play a significant role in decreasing persistent health disparities and enabling progress toward health equity.

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Example 1

Community-Driven Program

Since 1999, the Racial and Ethnic Approaches to Community Health (REACH) in the CDC's National Center for Chronic Disease Prevention and Health Promotion has supported locally based and culturally tailored solutions to reverse "the seemingly intractable gaps in health that diverse communities in urban, rural, and tribal areas experience across the United States."[28] Racial and ethnic minority communities are disproportionally affected by chronic disease in America.[28] REACH explicitly focuses on reducing chronic diseases for multiple racial and ethnic groups in communities with high chronic disease rates. REACH recipients work with cross-sector, community coalitions using evidence-based, culturally tailored interventions to address community-specific health disparities and social determinants of health. REACH continues to show measurable change in the health of racial and ethnic minority communities with the greatest burden of disease.[28]

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Example 2

Framework That Includes SDOH

The Essentials for Childhood Framework, developed by CDC's National Center for Injury Prevention and Control, supports state health departments to build cross-sector partnerships and align efforts to create environments that help children grow up to be healthy and productive. The goal areas and suggested strategies address a number of factors that contribute to children's experiences of violence, such as social and structural determinants. Adverse childhood experiences such as violence are linked to chronic health problems, mental illness, and substance misuse in adulthood. The goal areas in the Framework include the following: (1) raise awareness and commitment to promote safe, stable, nurturing relationships and environments for all children; (2) use data to inform actions; (3) create the context for healthy children and families through norms change and programs; and (4) create the context for healthy children and families through policies.[31]

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Example 3

Multisector Collaboration

Hepatitis C (HCV) and HIV among people who inject drugs (PWID):

PWID face a syndemic of health and social challenges. One in 10 new HIV infections and most HCV infections are attributed to sharing needles and other injection equipment during injection drug use.[62,63] Eighty percent of people who inject heroin for the first time previously used pharmaceutical opioids nonmedically.[64] Many PWID face challenges related to basic needs such as homelessness, unemployment, access to transportation, and frequent negative encounters with law enforcement agencies. They also frequently experience stigma when they access health care. Such conditions can isolate PWID from sources of social support and keep them from seeking health care or harm reduction services. An upstream approach to address the overlapping public health problems of substance use disorder and infectious diseases could mean, for example, collaboration between public health agencies and organizations that aim to ensure that PWID have stable housing[65] and to address other barriers that deter healthier behaviors. Public health agencies can also work to increase PWID access to, and legal use of, syringe service programs (SSPs), which are safe and effective in reducing disease transmission, and they could work with law enforcement agencies to offer drug treatment to PWID during incarceration, or as an alternative to jail or prison.[66] Syringe service programs also increase appropriate use of health care, substance use treatment, testing for HIV and other infections, and social/psychological support services.[67,68] People who inject drugs who participate in SSPs are 3 times more likely to stop injecting drugs than those who do not access SSPs.[67] To address stigma, public health agencies could partner with medical training programs to promote improved medical education around appropriate care for persons with substance use disorders. This upstream focus could help ensure the success of the recently announced campaign to end the HIV epidemic,[69] help reduce illness and premature death associated with HCV infection by linking HCV-infected persons to curative therapy, and prevent opioid overdose.[66] Such interventions may also reduce other diseases linked to injection drug use, such as endocarditis, abscesses, MRSA (methicillin-resistant *Staphylococcus aureus*)[60] infections, sexually transmitted infections, and hepatitis A,[70] while simultaneously improving the health and social well-being of marginalized populations with disproportionate burdens of multiple diseases.

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Implications for Policy & Practice

- Building a sustainable, social/structural determinants of health infrastructure at state, tribal, local, territorial, and national levels of public health in a way that reaches across multiple areas of work can increase chances of meeting public health morbidity/mortality reduction goals, including decreasing health disparities.
- Greater attention to SDOH could help facilitate expansion in the thinking of public health professionals from disease- or condition-specific models to approaches that include broader systemic issues (eg, poverty, food insecurity, lack of housing), which often prevent evidence-based practices and policies from reaching those who need them most.
- Support from top leaders in public health institutions, together with continued capacity building and implementation of new approaches, can play critical roles in sustaining incorporation of SDOH in public health practice.
- Prevention efforts might benefit if public health leaders at all levels recognize and grapple with emerging socioeconomic and other contextual issues. Such issues can affect multiple diseases and conditions—thus favoring systems thinking and crosscutting approaches.
- Public health institutions can play an important leadership role in the system of community and service organizations that interface with the communities they mutually serve and care about. They could, for example, support practices of non-health organizations whose work affects population health.

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TABLE

Sample Recommendations Adopted by the CDC Advisory Committee to the Director (ACD)[a] Between2014 and 2017[40–44]

	Selected CDC Responses
Resources and technical assistance for public health practitioners	
To maintain the progress achieved through the technical resources developed at the CDC to support work, competence, and functional capacity of STLT Public Health agencies in addressing SDOH inequities, the CDC should ensure that SDOH-supportive resources are maintained, updated, and promoted as necessary on an ongoing and long-term basis. Build community capacity to implement, evaluate, and sustain programs and policies that promote health equity, especially in communities at highest risk.	Development and growth of SDOH Web site Collaboration with ASTHO to expand practice of braiding and layering among STLT health departments.
Data	
Identify and monitor indicators of health equity. The CDC should explore the available non–health data sources from other domains (eg, housing, human services, education, transportation, public safety, income) that are readily available and that offer insights into the impact of the social determinants of health	Indicators of Health Equity Project. Maintenance of non–health data resources on SDOH Web site.
Planning	
In its efforts to advance health equity and optimal health for all, the CDC should develop a clearly understood vision and plan for addressing the social and structural determinants of health and health inequities (SDOH).	Workgroup plan and implementation.

Abbreviations: ASTH0, Association of State and Territorial Health Officials; CDC, Centers for Disease Control and Prevention; SDOH, social and structural determinants of health; STLT, state, tribal, local, and territorial.

[a]ACD disbanded in 2017.