



Centers for Disease Control and Prevention's National Center for Chronic Disease Prevention and Health Promotion: Social Determinants of Health Data Exchange for Chronic Disease Prevention Initiative

Public Health Business Case

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Version 4.0



Revision History

Date	Version Number	Author	Description of Revisions
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April 19, 2022	2.0	EMI Advisors	Incorporated CDC's input. The draft will be introduced to the workgroup on April 20, 2022.
May 9, 2022	3.0	EMI Advisors	Incorporated workgroup feedback. The document is ready for workgroup consensus voting.
May 23, 2022	4.0	EMI Advisors	Incorporated consensus vote comments submitted by workgroup members. Published as a final deliverable.



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Social Determinants of Health Public Health Business Case

Introduction to the Business Case

The purpose of this document is justification for investing resources and time in developing social determinants of health (SDOH) public health use cases for chronic disease prevention. The business case describes the value proposition (the why) and the goals, timeline, potential benefits, assumptions, risks, and return on investment for the initiative.

Initiative Overview

The Centers for Disease Control and Prevention's (CDC) National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), in partnership with EMI Advisors, will convene a cross-sector workgroup under the [Gravity Project](#), a multi-stakeholder public collaborative developing consensus-driven SDOH data standards. The workgroup will develop a set of public health use cases to drive the adoption of nationally recognized SDOH standards for data collection, aggregation, use, and reuse at the community and national levels to address chronic disease prevention.

Public Health Business Need

The CDC recognizes that conditions in which we are born, grow, live, learn, work, play, worship, and age—known as SDOH¹, have a profound impact on health. Research indicates that as much as 80% to 90% of a person's health is determined by health-related behaviors, socioeconomic, and physical environment factors that typically are outside of medical care.² Individuals managing chronic medical conditions find it increasingly difficult to prioritize care through preventive measures such as eating well, being physically active, avoiding tobacco, and getting regular screenings if needing to manage social risks such as housing insecurity or financial instability. Equally challenging is the ability for partners such as public health agencies, providers, and policymakers to access and thereby act on data about an individual's or community's social determinants. These partners often work in siloed sectors, resulting in disconnected technical systems with incomplete, unstructured, and outdated data. This makes it more difficult to proactively address the health and well-being of individuals and communities, such as supporting immediate needs for interventions and services. These silos can adversely influence community priorities and capacity for addressing community gaps in care and services. The need for more robust, standardized, interoperable, and timely SDOH-related data

¹ <https://www.cdc.gov/chronicdisease/programs-impact/sdoh.htm>

² Magnan, S. 2017. Social Determinants of Health 101 for Health Care: Five Plus Five. NAM Perspectives. Discussion Paper, National Academy of Medicine, Washington, DC. <https://doi.org/10.31478/201710c>



to support 2030 Healthy People³ objectives, the Ten Essential Public Health Services,⁴ and current, and future public health emergencies will take a concerted effort across all partners.

The business need was formulated with findings from an environmental scan (see Appendix A) and a data infrastructure gap analysis (see Appendix B).

Background

Healthy People 2030

Healthy People 2030 is the fifth iteration of the Healthy People initiative. It builds on the knowledge gained over the past four decades and addresses the latest public health priorities and challenges.⁵ The Healthy People 2030 framework was based on recommendations made by the [Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2030](#) (Committee).⁶

The vision under Healthy People 2030 is “a society in which all people can achieve their full potential for health and well-being across the lifespan.” One goal is to “create social, physical, and economic environments that promote attaining the full potential for health and well-being for all.” Other goals relate to eliminating health disparities and promoting healthy development, healthy behaviors, and well-being across all life stages.

While Healthy People 2030 identifies public health priorities and specific objectives toward achieving a healthier America, the Ten Essential Public Health Services (EPHS) help define and communicate the critical role of public health. The Ten EPHS provide a framework for public health to protect and promote the health of all people in all communities.⁷ To achieve equity, the current EPHS actively promote policies, systems, and overall community conditions that enable optimal health for all and seek to remove systemic and structural barriers to health inequities.

This 2030 revised version clearly places health equity at the center, supporting current and emerging public health needs and practices. The ability to collect timely and robust health data with individual- and population-level social needs and risks is critical for public health agencies providing essential public health services to:

- assess and monitor population health,
- investigate, diagnose, and address health hazards and root causes,
- enable equitable access, and
- build and maintain a strong organizational infrastructure for public health.

³ Healthy People 2030: Social Determinants of Health.
<https://health.gov/healthypeople/objectives-and-data/social-determinants-health>

⁴ The Ten Essential Public Health Services Framework available at
<https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html>

⁵ <https://health.gov/our-work/national-health-initiatives/healthy-people/healthy-people-2030>

⁶ <https://health.gov/our-work/national-health-initiatives/healthy-people/healthy-people-2030>

⁷ <https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html>



The COVID-19 pandemic and its economic ramifications increasingly highlight the effect of social risks and social needs on individuals, families, and community health and well-being. The growing awareness from medical care partners of how SDOH can shape health has contributed to efforts addressing actionable socioeconomic risk factors through the health care delivery system. Many of the recent large-scale innovations in this area begin with the strategic collection of SDOH data. For example, the Centers for Medicare & Medicaid Services (CMS) Innovation Center Comprehensive Primary Care Plus Model⁸ requires providers to assess patients' social risks. The CMS Innovation Center's Accountable Health Communities Model developed a social risk assessment tool⁹ to support this to help identify and address social risks across clinical and community-based settings. Additional models and programs across public and private sectors are underway to address SDOH in clinical and community settings.

National Center for Chronic Disease Prevention and Health Promotion

The CDC's National Center for Chronic Disease Prevention and Health Promotion's (NCCDPHP or "Center") mission is to help people and communities prevent chronic diseases and promote health and wellness for all. Chronic diseases are defined broadly as conditions that last one year or more and require ongoing medical attention or limit activities of daily living, or both.¹⁰ Presently, six in 10 Americans live with at least one chronic disease such as [heart disease and stroke](#), [cancer](#), and [diabetes](#), among others. These, and other chronic diseases, are the leading causes of death and disability in America as well as a leading driver of [health care costs](#).¹¹

The Center promotes chronic disease prevention efforts in four key areas, or domains:¹²

- **Epidemiology and Surveillance.** Epidemiology and surveillance entail gathering information from multiple data sources, including behavioral risk factor surveys, birth and death certificates, registries of cancer cases and deaths, and health care systems. This also involves using health information technology to improve efficiency and timeliness of public health surveillance (e.g., to speed reporting to state cancer registries).
- **Environmental Approaches.** Environmental approaches include initiatives, such as fluoridating community water systems and increasing access to healthy foods and beverages (e.g., full-service groceries and farmers' markets, healthier menu items in restaurants).
- **Health Care System Interventions.** Health care system interventions encompass improving access to health care for populations with little or no access. This includes interventions such as cancer screenings for people without health insurance and management of high blood pressure through team-based care, the use of community health workers, patient and digital navigators, and other allied professionals delivering high-quality care.
- **Community Programs Linked to Clinical Services.** Community programs linked to clinical services involve increasing the use of effective community-delivered interventions, such as chronic disease self-management programs, the National

⁸ <https://innovation.cms.gov/innovation-models/comprehensive-primary-care-plus>

⁹ <https://innovation.cms.gov/files/worksheets/ahcm-screeningtool.pdf>

¹⁰ <https://www.cdc.gov/chronicdisease/about/index.htm>

¹¹ <https://www.cdc.gov/chronicdisease/index.htm>

¹² <https://www.cdc.gov/chronicdisease/center/nccdphp/how.htm>



Diabetes Prevention Program, and smoking cessation services, through clinician referrals and health insurance coverage. It can also include linking public health services to health care systems, such as tobacco quitlines.

NCCDPHP's Social Determinants of Health Priorities

The Center has long recognized the importance of addressing SDOH as they are the primary drivers of health outcomes, especially for vulnerable persons and populations.^{13 14} The Center is dedicated to driving population health so it can reduce the burden of disease and eliminate health disparities. Differences in SDOH contribute to the stark and persistent chronic disease disparities in the United States among racial, ethnic, and socioeconomic groups.¹⁵

The five priority SDOH domains the Center is addressing are:

- **Built Environment.** Built environment is human-made surroundings that influence overall community health and individual behaviors that drive health.
- **Community-Clinical Linkages.** Community-clinical linkages are connections made among health care systems and services, public health agencies, and community-based organizations to improve population health.
- **Food and Nutrition Security.** Food and nutrition security exists when all people, at all times, have physical, social, and economic access to food that is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences. This SDOH domain also requires an environment of adequate sanitation, health services, and care, allowing for a healthy and active life.
- **Social Connectedness.** Social connectedness is the degree to which individuals or groups of individuals have and perceive their desired number, quality, and diversity of relationships that create a sense of belonging and being cared for, valued, and supported.
- **Tobacco-Free Policy.** Tobacco-free policies are population-based, preventive measures to reduce tobacco use and tobacco-related morbidity and mortality.

As NCCDPHP carries out its mission, it supports state, local, tribal, and territorial public health jurisdictions to collect and analyze data on chronic diseases and leading health indicators through various [surveillance systems](#) and data collection efforts. This information helps public health professionals and partners understand how chronic diseases affect people and places across the United States and how well public health interventions work.¹⁶

NCCDPHP's commitment to addressing SDOH also extends to the Center's engagement in national SDOH efforts, including the Gravity Project. While many recognize the importance of collecting data related to SDOH, data is often collected in different formats, using different

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<https://www.kff.org/racial-equity-and-health-policy/issue-brief/disparities-in-health-and-health-care-5-key-question-and-answers/>

¹⁴ De Lew N, Sommers BD. Addressing Social Determinants of Health in Federal Programs. JAMA Health Forum. 2022;3(3):e221064. doi:10.1001/jamahealthforum.2022.1064

¹⁵ <https://www.cdc.gov/chronicdisease/programs-impact/sdoh.htm>

¹⁶ <https://www.cdc.gov/chronicdisease/center/nccdphp/how.htm>



semantic or vocabulary standards—or not at all. This creates additional challenges and burdens for patients, families, communities, providers, public health agencies, and other partners in addressing SDOH and achieving health and well-being for all. Addressing SDOH helps advance health equity, where “every person has the opportunity to attain his or her full health potential, and no one is disadvantaged from achieving this potential because of social position or other socially determined circumstances.”¹⁷

Gravity Project

Launched as a multi-stakeholder public collaborative in May 2019, the Gravity Project develops, tests, and validates standardized SDOH data for use in patient care, care coordination between health and human services sectors, population health management, public health, value-based payment, and clinical research. The Gravity Project has convened over 2,000 participants from across the health and human services ecosystem. This includes:

- clinical provider groups,
- patients, patient advocacy organizations and caregivers,
- community-based organizations,
- standards development organizations,
- federal and state government,
- payers, and
- technology vendors.

To date, the Gravity Project has focused on developing data and exchange standards that represent patient-level SDOH data documented across four clinical activities: screening, assessment/diagnosis, goal setting, and treatment/interventions.¹⁸ The Gravity Project’s conceptual framework has primarily explored SDOH data standards and representation from a clinical care perspective. An individual may be seen in a clinical or community-based setting where an entity administers a screening questionnaire. Then, the framework maps how to incorporate that information into care processes. However, the Gravity Project, NCCDPHP, and many of its participants across the ecosystem believe this data can be reused upstream to support public health. To identify how best to reuse SDOH data for public health purposes, the CDC will utilize the Gravity Framework and collaborative consensus-building process to develop a set of use cases to galvanize public health professionals.

Initiative Goal

The initiative’s goal is to develop an effective and culturally responsive set of consensus-based use cases that support safe electronic collection, aggregation, use, reuse, and reporting of SDOH data for chronic disease prevention and promotion.

¹⁷ <https://www.cdc.gov/chronicdisease/healthequity/index.htm>

¹⁸ https://www.healthit.gov/sites/default/files/facas/2021-04-08_Gravity_Project_Presentation.pdf



Identified Benefits

The benefits of undertaking the initiative include but are not limited to:

- Culturally responsive and consensus-based use cases with standardized terminology and vocabulary that are suitable for public health purposes.
- Foundation building for standardized data flows for SDOH data gathering, aggregation, use, and reuse by multiple offices within CDC, federal agencies, state, local, tribal, and territorial public health jurisdictions.
- Knowledge gathered and shared on leveraging data collected by health care and community-based settings.
- Improved availability of individual- and community-level data for public health.
- Reuse of integrated SDOH data for more meaningful outcome analyses and improved care delivery at both individual and population levels under proper patient privacy compliance.
- Improved access to timely, granular SDOH data to fill gaps in current SDOH data assets.
- Cross-sector SDOH data alignment to accelerate public health agencies' abilities to address SDOH.
- Provider and organizational burden reduction on reporting similar data to various parts of CDC and other federal, state, or local agencies.
- Closer coordination, collaboration, and trust among public health, health care, human services, and community partners in data collection and use methodologies.
- Opportunity identification to integrate different data sources, such as the combination of electronic health information with survey data, to provide a holistic view of health-related social needs (HRSNs) and support for quality improvement.

Many of these benefits may build upon each other, and some will become easier to achieve after others are realized. For example, leveraging data collected by health care and community-based settings could help reduce provider and organizational burden on reporting similar data to CDC and other federal, state, local, tribal, and territorial agencies.

Significant Assumptions & Constraints

The most significant assumptions and constraints, including circumstances or events outside the control of the initiative, that can affect its success include the following activities:

- **Timeline for Convening Workgroup.** The initiative will be facilitated via a public-facing workgroup. The workgroup will meet eight times for 90 minutes each. Given the diversity of public health initiatives to address SDOH and the diversity of participants joining the workgroup, the workgroup will need to be structured and managed with a clear scope of work and timeline.
- **Coordination with other national public health and SDOH initiatives.** This initiative will be coordinated and aligned to applicable initiatives, including but not limited to the Helios Initiative, MedMorph, mCODE, USCDI+, and CMS policies, programs, and payment models. The CDC and EMI Advisors project teams will monitor projects and coordinate with identified project leads as necessary.



- **Alignment to National Data and Health Equity Standards.** This initiative will not focus on defining Race, Ethnicity, Sex, Primary Language, Disability, and Sexual Orientation and Gender Identity (SOGI) data elements or related data exchange standards. While NCCDPHP recognizes the importance of ensuring standardization across these data categories, there is existing work underway within CDC and other federal agencies to address this need.
- **Policy Development and Program Alignment.** The initiative will not develop program incentives to implement the use cases, nor will the initiative develop data-sharing agreements and policies that promote public health to health care or social service provider data exchanges.
- **Availability of Data on All Persons.** It is acknowledged that leveraging data from clinical or community-based settings will not yield complete data on all persons in a specified area on a regular basis.
- **Administrative Burden.** This initiative will be mindful of the potential for an additional workload that may occur through increased data collection and will make an effort to minimize adding such burden.

Anticipated Return on Investment

The consequences of missing or poor quality data, which can refer to duplicate, inconsistent, outdated, or confusing records, often negatively impact any organization and add to unnecessary costs.^{19 20} While this initiative will explore operational, technical, and programmatic benefits, it is equally important to note the financial benefit related to the potential reuse of SDOH-related data. Automated reporting and data collection from a clinical or community-based setting may have the opportunity to minimize costs for implementing programs, research, and evaluation for public health counterparts. The cost of setting up interfaces, especially those enabled through FHIR, with existing provider IT systems, community-based referral platforms, or other aggregators of individual-level data may help offset the long-term costs of existing, more costly, data collection methods. Access to timelier, more standardized, and structured data allows for more effective and efficient decision-making by public health professionals.

General themes of cost savings from automated reporting and data collection for public health can accrue from:

- reducing administrative burden and increasing timeliness for data collection and reporting, especially if currently done “manually” via phone, paper, or manual data entry,
- leveraging data collected once and reused for multiple purposes within public health agencies,
- decreasing resources needed to map and normalize data,
- addressing root causes of chronic disease and implementing preventative measures in a timely manner,
- realizing savings from unnecessary, avoidable or preventable clinical use, such as emergency departments due to housing insecurity,

¹⁹ <https://hbr.org/2016/09/bad-data-costs-the-u-s-3-trillion-per-year>

²⁰ <https://www.jiem.org/index.php/jiem/article/view/232/130>



- identifying interventions to provide social service supports for targeted, vulnerable populations with chronic medical conditions,
- informing targeted population-level interventions to meet community needs and build capacity for community health prevention and improvement, and,
- identifying and mitigating emerging public health issues more rapidly.

Public health agencies can leverage cost benefits from the health system for SDOH data use and exchange. For example, Humana used electronic data collected in claims and quality reporting to target food-insecure members. They found that food-insecure people were 50% more likely to have diabetes, 14% more likely to have hypertension, and 60% more likely to experience heart failure. Upon offering screened members Supplemental Nutrition Assistance Program (SNAP) benefits and an emergency food box, they reduced the number of unhealthy days by 50%, with an expense of \$15.64²¹ for every unhealthy day. Other payers used SDOH data to investigate the impact on hospitalizations of housing interventions, such as investing in home appliances and air filtration systems to treat asthma, which impacts hospitalizations. A study by the Blue Cross Massachusetts Foundation determined that investments in housing services decreased hospitalizations—in some cases, up to a 55% reduction in total monthly Medicaid costs.²² The potential cost benefits of using aggregated patient-level data have enormous potential to reduce unnecessary costs throughout the care ecosystem and help identify the appropriate community-level interventions.

Initiative Risks and Mitigation Strategies

The following table presents potential risks with the initiative and respective mitigation strategies.

Risk/Issue	Probability	Impact	Mitigation Strategy
Failure to attain adequate representation from the public health community.	Medium	High	Leverage CDC’s NCCDPHP connections of state, local, tribal, and territorial grantees and invite them to the workgroup. Engage associations, such as ASTHO and NACDD, and other groups that serve the public health community to increase representation.
Failure to achieve trust between diverse partner groups, specifically for smaller entities often competing for funding and other resources to work toward similar	High	Medium	This workgroup will not request or share intellectual property. The workgroup is solely focused on the creation of functional requirements for public health use cases.

²¹ <https://www.healthcareitnews.com/news/social-determinants-health-and-17-trillion-opportunity-slash-spending>

²² <https://www.bluecrossmafoundation.org/publication/leveraging-social-determinants-health-what-works>



Risk/Issue	Probability	Impact	Mitigation Strategy
aims.			
Failure to achieve consensus on priority use cases applicable to public health purposes.	Medium	High	The CDC SDOH Public Health Use Case Workgroup for Chronic Disease Prevention technical approach builds off the Gravity Project's established processes and framework to collect, review, and reconcile each collaborative participant's feedback throughout the workgroup lifecycle.
Failure to reach alignment with other CDC activities, including national public health and SDOH initiatives.	High	Medium	This workgroup project team will closely monitor projects and will collaborate with appropriate leads as needed.

Timeline

The workgroup will convene with a series of eight virtual meetings from April to July 2022 on Zoom that follows the structure and format of the Gravity Project.

After the workgroup concludes, the EMI Advisors team will submit a final recommendations report to the CDC in August 2022 to advance the implementation of consensus-based use cases and achieve the vision of interoperable, standardized data to support SDOH public health programs, policies, and interventions.

Conclusion

This initiative supports the Center's efforts to target SDOH to support public health agencies at all levels that seek to improve health equity and reduce chronic disease health disparities. The process of use case development, with a multi-partner workgroup, will identify the needs and challenges of incorporating SDOH data into public health activities at the state, local, tribal, territorial, and federal levels. The development of an initial set of public health use cases focused on SDOH and chronic disease prevention can provide a scalable framework for creating additional use cases on access to timelier, more robust data for actionable decision making and strategic planning. This data will assist public health professionals develop policies, programs, and interventions focused on achieving better health and well-being for all.



Appendix A: Environmental Scan Key Themes

Across the U.S., many programs and initiatives bridge providers across health and human services to address SDOH at the individual and community level. In the fall of 2021, EMI Advisors, under contract by the CDC, conducted an environmental scan of national, state, local, and industry efforts that support SDOH-related strategy, planning, governance, standards development, measurement, implementation, interoperability, and analytics.

The scan identified several initiatives underway across the nation. The initiatives, ranging from federal grants, to industry collaborations, to state- and regional-based programs, all had potential for aligning to chronic disease prevention and health promotion priorities. The scan also identified existing or pending federal laws, legislation, rules, policies, and state laws passed in 2021 to support addressing SDOH.

The environmental scan identified several primary themes:

- Ongoing widespread focuses address SDOH needs through many existing and emerging discrete programs and initiatives from the CDC, federal agencies, states, and communities.
- Considerable public funding distributed to states and communities may require federal coordination and alignment to reinforce a common approach to data collection, standards, and reporting.
- Current federal efforts coordinate and align initiatives with the CDC priorities and across the federal government.
- States began the use of numerous policy levers to advance SDOH data collection including: requirements for hospital community benefit reporting, social needs assessments, data from health care providers and organizations on SDOH in value-based care payment models, and promotion of public health reporting.

The findings of this environmental scan were leveraged to further understand existing needs and gaps for capturing, aggregating, integrating, and sharing SDOH-related data to support public health use cases.



Appendix B: Findings from Data Infrastructure Gap Analysis & Key Interviews

From December 2021 to April 2022, EMI Advisors, under contract with the CDC, completed a data infrastructure gap analysis that included a) analyzing CDC data sets and b) conducting key partner interviews. Building on the environmental scan, the analysis identified over 30 high-priority data sets on chronic disease prevention and SDOH. Across 23 interviews and four listening sessions with CDC NCCDPHP Divisions, federal partners, and external partners, participants were asked several questions about their organization's high-priority projects on health equity and specifically SDOH; challenges and barriers to data collection, use, and aggregation; and opportunities for more standardization and use to support public health. The following themes emerged as a result of this work:

- **Multiple Data Gathering Methods.** Data is gathered or collected through numerous mechanisms (e.g., national surveys, commercially purchased datasets, program-reported data, clinical data, and claims) with little standardization of data type or data formats.
- **Combined Data Sets.** Survey data is often combined with other data sets by different programs to create additional databases for specific program needs (e.g., BRFSS, NHANES, and purchased data).
- **Data Sources.** EHR data was not a typical data source for national-level population health indicators. Most datasets are not coded with nationally recognized terminologies (e.g., LOINC, SNOMED-CT, and ICD-10).
- **Survey Questions.** Survey questions are not always aligned when asking about the same SDOH domain; current efforts are underway to include social risk questions in modules.
- **Data Timeliness and Age.** Data sources are often two or more years old by the time they are ready for use (e.g., survey data).
- **Data Coordination Needs.** Interviewees indicated a need for better coordination across the CDC regarding the collection and use of data.
- **Data Visualization Tools.** Interviewees indicated they desired better methods and tools for data visualization.
- **Measure Development and Alignment.** Interviewees identified multiple public health measures used by different CDC divisions and partners. As SDOH metrics evolve, they can be coordinated and reused to support SDOH measurement.
- **Data Collection and Availability.** Existing workflows may collect SDOH data in different parts of the provider IT system and may limit or hinder data extraction efforts for public health use.

These findings reflect the current state of public health data use and identify several opportunities for alignment, such as the use of standardized data sources and coded data elements to inform public health indicators related to SDOH. The findings from the data infrastructure gap analysis helped validate the need to develop a consensus-based set of use cases that will have broad applicability, feasibility, and desirability for public health purposes.