Enhancing Chronic Disease Surveillance Through Social Determinants of Health Data From Clinical Settings

Rationale

Public Health 3.0 identifies social determinants of health (SDOH) as key drivers of poor health and advocates addressing nonmedical factors that affect health and health equity.[1] To promote health across all communities, health departments need data sources that allow them to explore the relationships among SDOH, race and ethnicity, risk behaviors, and health conditions. Individual social needs[2] are primarily assessed in clinical settings to connect patients to support services, but these social needs data can also be shared with health departments to explore SDOH epidemiology. Unlike population-based SDOH data, such as those from the U.S. Census Bureau and American Community Survey (ACS), that describe some SDOH factors at the community level, individual social needs data can help health departments explore a wider array of social needs and how those social needs affect risk for chronic illness, disease progression, and health outcomes. This document describes SDOH data collected in clinical settings and offers guidance for public health professionals on how these data can be used to inform public health practice.

Background and Context

Healthy People 2030 is a set of national data-driven 10-year objectives to improve health and well-being in the United States. Healthy People 2020[3] introduced SDOH to the nation's health agenda, and Healthy People 2030[4] has identified SDOH as one of three priorities. Prioritizing SDOH has prompted healthcare and public health to clarify their roles and responsibilities concerning SDOH as evidenced by the initiatives below.

Social Needs Assessment in Healthcare: In 2022, Centers for Medicare & Medicaid Services (CMS) created and adopted a set of SDOH quality measures to track healthcare quality using an SDOH lens. Later in 2023, CMS mandated hospitals to: (1) begin assessing patient's social needs, (2) report what portion of their population is screened for social needs, and (3) report how many patients screen positive in each SDOH category.

SDOH Data Standards and Interoperability: In 2017, the Gravity Project was launched to ensure that individual-level social needs data collected from clinical care could interoperate across organizations by developing consensus-based data standards.[5] Based on the Gravity standards, the Centers for Disease Control and Prevention has begun developing public health-focused SDOH use cases that may guide how health departments will use social needs data from clinical settings in the future.[6] The Office of the National Coordinator (ONC) supported development of the United States Core Data for Interoperability (USCDI), which includes a standardized set of SDOH data elements. To encourage widespread SDOH data collection and use, ONC released The Social Determinants of Health Information Exchange Toolkit.[7]

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[1] DeSalvo, KB, Wang, YC, Harris, A, Auerbach, J, Koo, D, & O'Carroll, P (2017). Peer reviewed: Public Health 3.0: A call to action for public health to meet the challenges of the 21st century. *Preventing chronic disease*, *14*.

[2] The terminology used to refer to social needs varies. Here, "social needs" describes the data collected in clinical settings.

[3] Health People 2020. wayback.archive-it.org/5774/20220413162703/https://www.healthypeople.gov/2020/topics-objectives

[4] Healthy People 2030. health.gov/healthypeople

[5] The Gravity Project. https://thegravityproject.net/

[6] CDC SDOH Workgroup Identifies Public Health Use Cases www.hcinnovationgroup.com/population-health-management/social-determinants-of-health/news/21277138/cdc-sdoh-workgroup-identifies-public-health-use-cases

[7] Social Determinants of Health Information Exchange Toolkit. https://www.healthit.gov/sites/default/files/2023-02/Social%20Determinants%20of%20Health%20Information%20Exchange%20Toolkit%202023_508.pdf

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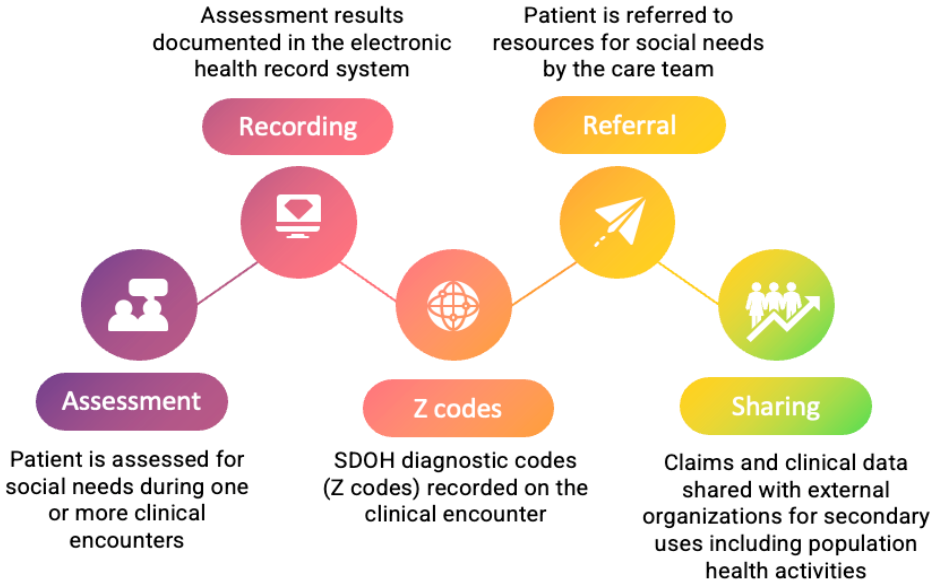
Overview of the Clinical Workflow for SDOH

With this standards and policy backdrop, healthcare providers are working toward implementing a standard social needs assessment, recording these data in the electronic health record (EHR), and referring patients to community organizations to provide appropriate support. The figure illustrates how data could flow from individual social needs assessment to use of SDOH data to inform population health activities.



Considerations for Public Health Using EHR-Based SDOH Data

Responses to social needs questions (e.g., has lack of transportation kept you from medical appointments, meetings, work, or from getting things needed for daily living?) and diagnostic codes ("Z codes") are the most common types of SDOH data available from EHRs. The context associated with collecting these types of SDOH data is an important consideration for health departments in defining how those SDOH data will be used. Aspects of that context include:

- Healthcare organizations use a variety of social needs assessment tools. Assessment frequency can vary significantly across care setting (e.g., outpatient only versus all encounters), type of encounter (e.g., annual exam visit, versus sick visit), and organization.
- Because different social needs questions are used across healthcare organizations, it can be difficult to synthesize SDOH data across multiple organizations.
- A patient's social needs are dynamic and can change over time. Collecting multiple observations at varying intervals may be necessary to get a full picture of a population's needs.
- CMS has provided guidance on the use of Z55-Z65 ICD-10-CM codes (e.g., Z59: Problems related to housing and economic circumstances) for documenting social needs.[8] The use and completeness of Z codes is limited because: (1) Z codes may be non-reimbursable, and (2) providers or patients may be reticent to discuss or document social needs.[9]
- While Z codes offer a standard method to document social needs in the EHR, social needs may instead be documented in customized fields or as unstructured notes.
- Like EHR-based surveillance, social needs data only reflect a healthcare-seeking population (i.e., the patients who were assessed); such data cannot be generalized to the whole community.
- Social needs data and resulting insights are best interpreted in collaboration with community partners and people with lived experience—data collected during the clinical encounter(s) do not tell the full story.

[8] Using Z Codes: The Social Determinants of Health Data Journey to Better Outcomes. Center for Medicare Services. https://www.cms.gov/files/document/zcodes-infographic.pdf

[9] Kepper, MM, Walsh-Bailey, C, Prusaczyk, B, Zhao, M, Herrick, C, & Foraker, R (2023). The adoption of social determinants of health documentation in clinical settings. *Health services research*, *58*(1), 67–77.

- Periodic assessment of patient social needs does not replace authentic community engagement. Community-based participatory research (CBPR) is one method to co-design a pathway to equity.

Public Health Applications of Social Needs Data From Clinical Settings

Despite their limitations, EHR-based social needs data are potentially applicable to many aspects of public health work. First, social needs data from clinical settings are connected to individual addresses that, when geocoded and aggregated by local geographic unit, may offer more insight on the burden of social needs at a neighborhood level than what is available from the Census and ACS. For example, ACS offers information about education level, employment, income, insurance status, and language but provides no information about food insecurity or transportation nor insights about the frequency or impact of experiencing multiple social needs at the same time. For individuals regularly receiving healthcare, repeated SDOH assessment results could offer a longitudinal look at how the social needs burden changes over time in a population. Future work is needed to define and validate methods for aggregating individual social needs assessment data at the community level to calculate and track the community burden of social needs, including comparisons with complementary population-based SDOH data sources such as the Social Vulnerability Index.[10] Because ACS and the Social Vulnerability Index are not as timely as EHR data, social needs data from clinical settings could be a more timely data source to inform health department efforts to advance equity in the communities they serve.

Within the clinical record, social needs assessment results are linked with other clinical information, such as diagnostic codes, screening test results, and medication orders, so that public health may learn more about how social needs affect chronic condition screening, diagnosis, treatment, and long-term outcomes. Consider the example of transportation (a social need) and vision screening for diabetes-related comorbidities such as vision impairment. For a health department considering how to select and implement programming to improve vision screening in this high-risk population, a SDOH-based analysis might reveal that transportation needs are the primary barrier to patients with diabetes receiving routine vision screening, suggesting that a program to provide ride sharing could more effectively increase vision screening compared with other strategies such as reminder phone calls. This same linkage between social needs and clinical information could be useful in evaluating how effectively public health programs reached individuals with social needs and how much impact public health programs had among populations with specific social needs.

Ultimately, the assessment and use of social needs data present a unique opportunity for public health to learn more about the epidemiology of social needs among the communities that they serve (who has social needs?), patterns of social needs among populations with priority chronic conditions (what social needs are the most common among patients with hypertension, diabetes, and obesity?), and the impact of social needs on chronic disease prevention, progression, and long-term outcomes (how do social needs influence a patient's likelihood of being screened, diagnosed, and treated for chronic diseases?).

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[10] Social Vulnerability Index. https://www.atsdr.cdc.gov/placeandhealth/svi/index.html#:~:text=Social%20vulnerability%20refers%20to%20the,human%20suffering%20and%20economic%20loss.