Chapter 9

Practical Strategies in Addressing Social Determinants of Health in Clinical Settings

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Objectives

- Describe clinical tools for social, environmental, and legal needs screening.
- Describe clinical tools for social, environmental, and legal needs referral and tracking.
- Describe workforce training needs for addressing social determinants of health.
- Describe how clinic-based interventions to address social determinants of health can both link with and reinforce population-level interventions.

Veronica is a 40-year-old woman with asthma. She visited three emergency rooms (ER) in 1 month. Following the third ER visit, she was referred to a primary care clinic where a medical assistant noted that she lived in an area endemic for unhealthy housing. Veronica then was screened for associated housing risks. Veronica lived in a damp, moldy home. With that information, the MD correctly diagnosed her with a housing-related illness. He treated her with medications and enrolled her in a healthy housing program. Veronica and her home got better.

INTRODUCTION

It has long been recognized that social forces—poverty, class, gender, racism, war, and social policies—have a profound effect on disease: on who gets ill, the spread, and course of illness. Rudolf Virchow, a German physician, is credited with not only being the founder of pathology and cellular biology but also the father of social medicine. He advanced the idea that disease is not purely biological, but can be caused, spread, and exacerbated by social factors. To combat disease, Virchow suggested scientific medicine should be combined with population health, public health, and politics. In 1848, for example, he concluded that the cause of a typhus outbreak was largely due to wretched living conditions and that such an epidemic could be very simply prevented through "education, with its daughters, liberty and prosperity ...." With these insights, Virchow and others committed to social justice brought about stunning improvements in health in the 19th century, long before the advent of antibiotics and other miracles of modern medicine, through social policies addressing poverty, improving public sanitation, as well as working and housing conditions.

Contemporary social medicine advocates still recognize inequality as a potent factor underlying disease and have been very influential globally. Tackling the HIV pandemic, for example, has required not only understanding the biology of the virus but also supporting the rights of the poor, women, sex workers, children, drug addicts, and sexual minorities and challenging systems that put treatments out of the financial reach of patients.

In the United States, Virchow's insights have not been widely incorporated into social policies or medical practice. Currently, the US programs created to address social conditions that undermine health are associated with the safety net and are often reviled as "handouts." Issues such as poor housing conditions or food insecurity, which arguably would be more effectively addressed in the arena of public

Table 9-1. Three Intervention Levels on the Social Determinants of Health for the Health-Care Sector

Target	Patients	Institutional Populations	Community
Goals	Health-care organization (HCO) applies SDOH to interventions directed toward individuals	HCO applies SDOH data to direct intervention toward patient and employee populations	HCO influences policy debates or other community change processes
Potential Levers	• Adjust individual disease risk according to known social determinant risks • Co-locate medical and public health/other government programs • Improve referrals to off-site partners	• Report SDOH, health status, and utilization data on institutional population groups • Apply social determinants data to institutional policies and practices • Improve systems and interventions to address social/environmental factors for institutional populations	• Ensure data systems coordinate with relevant government, policy, or advocacy organizations. • Use aggregated data to influence policy decision making.
Intervention Examples	• Utilize medical assistants to refer food insecure patients to food benefits programs • Provide legal services through medical–legal partnerships	• Provide on-site farmer's markets • Offer physical activity subsidies or programs for members • Include utility protection letter designed by medical–legal partnerships in electronic health records • Offer living wages to all employees	• Lobby for increased cigarette taxes • Promote healthier food benefits packages • Advocate for healthy streets redesign

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policy, present themselves as powerful issues undermining the health of patients. In the absence of an integrated social approach to health, clinicians struggle to care for patients suffering from the ill effects of their social vulnerabilities.

Advocating for patients' social and legal needs, whether in the context of clinical encounters, clinical systems, or broader political contexts, requires specific training and tools (see Chapter 8, Advocacy). Examples of patient-, institutional-, and community-level interventions addressing social and legal determinants of health are provided in Table 9-1.

In this chapter, we focus on practical, clinic-based strategies to address social determinants of health at the patient and clinical system levels within the US health-care system. These strategies require both redesigning clinical systems and training the health-care workforce.

SOCIAL DETERMINANTS OF HEALTH IN CLINICAL SETTINGS

In 2012, the "blindside" of US health care was revealed by a nationwide survey of physicians assessing providers' capacity to address patients' social and legal needs. The survey found that 9 of every 10 clinicians working in safety net settings believe that social factors strongly contribute to health-care outcomes, but 80% report lacking the capacity to address these factors.[1] The gap between health providers' awareness of social needs and capacity to address them contributes to delays in diagnoses, less effective, inefficient (and therefore costly) health-care delivery and utilization, health disparities, patient dissatisfaction, and clinician burnout.[2]

Despite the pervasiveness of social need and its impacts on both child and adult health, patients' social, environmental, and legal needs often remain unaddressed in clinical encounters. Addressing these needs, however, may bring significant health benefits. Connecting food insecure patients and families to community food resources and food stamps, for example, may bring about long-term improvements in individual and community health. Studies have demonstrated the association of food insecurity, for instance, with increased HIV risk behaviors and, separately, increased hypoglycemia-related hospital admissions at the end of the month due to the exhaustion of food budgets.[3,4]

Socioeconomic indicators can also enhance the utility of specific clinical screening recommendations. Fiscella et al incorporated patient income into 10-year Framingham Risk Score calculations, and found that doing so better identified patients at risk of developing cardiovascular disease than did traditional calculators.[5] Furthermore, adjusting for education improves the accuracy of the Mini-Mental State Examination in predicting disease likelihood.[6] As knowledge about health impacts of interventions to address social and legal determinants grows, both the health-care quality and long-term financial benefits of adopting these interventions will become increasingly persuasive.

CLINICAL SYSTEMS REDESIGN

Many forces in the US system of health—from the historically separate development of our public health system and our medical schools to more recent health-care reimbursement systems that reward volume of services over value for money spent[7]—have stymied addressing social determinants of health both in clinic settings and the health-care system more generally.[8] The passage and implementation of the 2010 Patient Protection and Affordable Care Act (ACA) has led a number of payers in the public and private sector to explore ways of shifting from volume-based to value-based payment models that support continuity and coordination of care. Providers are being asked to reorganize and redesign the way they deliver care using models such as the Patient-Centered Medical Home (PCMH). Since social, legal, and environmental factors are major determinants of health outcomes, particularly among vulnerable populations, redesign efforts that seek to optimize value in clinical systems must incorporate methods to address relevant social determinants.[8]

Clinic system redesign is the systematic process of analyzing current clinical operations and planning new operational systems to improve the efficiency, quality, and effectiveness of patient care.[9,10] In US primary care settings, the components of clinic system redesign have been widely spread through financial incentives offered by a number of state and commercial payers.[11,12] Some categories of redesign that garner enhanced reimbursement are related to patient-centered access; team-based care; population health management; care management and support; care coordination; and care transitions.[13] Methods to address upstream social, environmental, and legal needs can align with and support clinic system redesign efforts, helping clinic systems meet new standards such as those established for PCMH and other models of coordinated care delivery (e.g., the patient-level Ambulatory Intensive Care Unit model or the system-level Accountable Care Organization model).

A typical patient-centered clinic workflow can be a helpful framework to consider ways to understand and address social determinants in clinical settings that serve vulnerable populations. Specific clinic functions in a typical workflow include screening, triage, evaluation and management, documentation; referrals, and follow-up. Clinical tools that address social determinants of health often seek to enhance one or more of these ambulatory patient-care functions.

SCREENING FOR SOCIAL DETERMINANTS OF HEALTH

There are two key operational questions to answer when considering screening for social determinants of health in clinical settings: "Which social determinants of health should we screen for?" and "How will we screen for these social determinants of health?"

Choosing which social determinants of health to screen for in a clinic setting can be challenging. To balance the need for useful, locally relevant social factor data that can inform patient care with the need for useful population-level data that can aid public health and research efforts, policymakers and clinical providers are encouraged to capture "Core" (foundational) measures and "Custom" (flexible) measures related to social determinants of health.

"Core" measures collected by all clinical sites

Clinics should first capture "Core" social needs and characteristics relevant to the care of most, if not all, vulnerable patient populations receiving care in the system. We recommend capturing "Core" socio-demographic domains described by a committee of the Institute of Medicine in 2014 (Box 9-1).[14]

"Custom" measures, clinic and population specific

Clinics should then take steps to capture "custom" measures tailored to community and clinic priorities that reflect local social determinants of health. These might include such issues as screening for risk of dropping out of school in adolescents, pesticide exposure in agricultural communities, history of political violence in refugees, or food insecurity in low-income, urban populations.

Choose validated screening tools when possible

A variety of screening tools to identify social, legal, and environmental needs are currently in use in clinical practice. They include validated, published tools developed by researchers as well as unpublished, "home-grown" surveys and questionnaires developed by frontline clinic staff eager to respond to perceived unmet social needs. Some tools are specific to a particular social factor such as food insecurity or occupational exposures and often reflect clinic projects supported by external funders with specific interests in a particular social need.[15-17] Other tools are more comprehensive, covering several social, legal, or

Box 9-1. "Core" Socio-demographic Domains

- Race/ethnicity
- Country of origin/US born or non-US born
- Education
- Employment status
- Financial resource strain: food and housing insecurity
- Sexual orientation

environmental domains (see www.HelpSteps.com).[18] A compilation of social screening tools is currently maintained by an online learning collaborative organized by HealthBegins (http://healthbegins.ning.com/page/social-screening-tool). The "Core Competency" at the end of this chapter includes specific items and references to several social screening tools used around the country.

Based on population needs and clinic priorities, many more topics could be considered, including domains related to social isolation, stress, violence, and literacy. The scientific validity of individual questions varies. Some questions such as those related to housing and food security have been well studied, but wide-scale adoption of comprehensive screening tools could be strengthened by improved validity testing to make sure that these questions maximize accurate disclosure on relevant, sensitive social and legal issues.

To improve institutional "buy-in" and the diversity of input, the screening selection process for "custom" measures should be participatory and involve representatives from different clinic and community stakeholder groups, including patients, clinicians, health information technology staff, billing/coding staff, social workers, care managers, enabling service staff, outreach/community health workers (CHWs), and community-based social service providers and advocates.

Community-specific social needs

After identifying their community catchment area, clinics are encouraged to contact local hospitals, public health departments, county agencies, nonprofit social service providers, advocacy organizations, and/or academic research institutions to obtain data and reports such as Community Health Needs Assessments that reflect local, population-specific unmet social needs. Clinics can also use web-based survey software, key informant interviews, focus groups, and other methods to collect primary data from community partners.

Community-specific resources

Clinics often choose not to screen for unmet social needs due to a lack of awareness of local community resources that can address them. In contacting local partners to identify unmet social needs as indicated earlier, clinics can also generate and update community-specific social resource maps. Clinics should strive to select "Custom" social screening measures for which local corresponding resources have been identified.

Clinic priorities

Patients with health problems or costly utilization patterns that are caused or exacerbated by unmet social needs can be a challenge to clinics that are striving both to improve care for individuals and populations and decrease costs. The selection of "Custom" measures for social needs screening should reflect the clinic's need to improve care and outcomes for specific vulnerable and challenging patient populations.

Optimize use of the Care Team

As clinics shift to team-based care models, methods that solely rely on the clinician to screen for core and custom measures related to social determinants of health are not recommended. Instead, consider redesigning the workflow of social screening to distribute the collection of core and/or custom social measures among other care team members and across different steps in the patient experience. These steps include pre-visit; patient registration/check-in; waiting room; vitals; in exam room/pre-clinician encounter; clinician encounter; post-encounter/in-room; lab; pharmacy; care coordinator, and scheduling follow-up.

Explore Electronic Health Record (EHR) and non-EHR–based tools

When possible, clinics should work with electronic health record (EHR) vendors, clinical EHR champions, in-house information officers, and other information technology staff to build social screening items into their EHR. Alternatively, other tools—such as self-directed and/or staff-assisted surveys via in-person or phone-based interviews or secure SMS, email systems, kiosks, or other standalone web-based software-as-a-service platforms—can be used to capture key data on unmet social needs (see HelpSteps.org; Healthify.us).

Triage

The degree to which screening tools are successfully integrated in clinical practice depends on several factors, including buy-in from clinic and community stakeholders as well as the clinic's ability to triage or sort patients to appropriate resources using these screening tools. Appropriate triage of unmet social needs identified in clinic settings should align with other practice-based triage processes. These should ensure that the clinic's written, posted triage policy is updated to include social, legal, and environmental needs and is developed and signed off by relevant clinic leaders, including medical, nursing, social work, quality, and legal supervisors. This policy should include protocols for "warm handoffs" between clinic staff when possible, as well as random chart reviews and other quality assurance mechanisms.

Clinic staff will also need to incorporate the triage of unmet social needs into existing patient care workflows or to create a parallel triage process that is independent of the patient–clinician encounter. Depending on the social need, patient population, and clinic priorities, clinics may

choose to have a clinician involved in the triage process to review any health-related social needs. This can be facilitated through several mechanisms, including pre-visit chart reviews; team huddles; or the integration of social workers, health educators, and/or CHWs into the care team and patient visit. Alternatively, tools such as EHRs with decision-support software can automate social needs triage, linking patients to community resources without the need for clinician discussion through printed handouts, SMS, phone calls, or email. The use of computerized order entry, standing orders, and decision support software can improve the efficiency of social needs triage.[19]

EVALUATION AND MANAGEMENT

While some clinics may decide to create a triage process that does not require that clinicians directly address social needs, it is important for clinicians and care team members to understand the ways in which social, environmental, or legal needs can have a direct impact on patient health and medical decision making. This understanding can inform and improve evaluation, diagnosis, and the effectiveness of treatment plans.

As clinically relevant information related to social determinants of health continues to expand, care team members, including clinicians, will have greater opportunities and professional obligations to incorporate this information directly into their evaluation of patients' presenting complaints and symptoms. As part of continuous quality improvement (QI) efforts, health-care professionals should avail themselves of emerging tools, continuing educational opportunities, and practice-based learning collaboratives to stay updated about the latest evidence regarding the complex interplay between social determinants and patient and community health.

Clinic system operational efficiencies also can improve management and treatment of health-related social needs. For example, clinicians involved in the medical–legal partnership at Boston Medical Center (BMC) routinely use templates to quickly generate letters for patients who are facing utility shut-offs (see Case Study), need supporting documentation for disability applications, require special education accommodations at school, or need to establish guardianship to facilitate caregiving.

DOCUMENTATION—CODING/CHARTING/BILLING

When health-related social needs are identified for individual patients, it is essential that clinicians and other care team members document social needs as indicated in the History of Present Illness section of their notes; the "Social History" section; in their assessment and treatment plans when relevant; and finally, in billing documentation, using ICD-9 (and soon ICD-10) codes.

Appropriate and accurate coding of health-related social needs addressed during an encounter using ICD codes yields better data for clinic-level and public health planning purposes and may also improve workload capture and clinic reimbursement rates by demonstrating the necessity of current procedural terminology and evaluation and management codes associated with the care of patients with complex bio-psycho-social needs.

REFERRALS AND FOLLOW-UP

Computer- or cloud-based databases will improve the accuracy, speed, portability, and sharing of resource information among clinic providers, community stakeholders, and patients. While resource databases typically include information on local social service agencies or providers, clinics should include resources that promote social connectedness and support (e.g., faith-based organizations or social clubs) as well as organizations that promote civic engagement, community organizing, and advocacy. A growing number of these electronic tools are now available to support clinics seeking to refer patients with social needs to community-based resources (Table 9-2).

Referral tracking

In addition to streamlining the process of finding and connecting patients to community resources, clinic systems can enable patient- and population-level tracking of community resource referrals. This facilitates performance measurement and QI efforts and aligns with PCMH standards and other clinic redesign efforts. Electronic referral systems integrated into the EHR can be a source of information for performance measurement. For instance, providers from the San Francisco General Hospital and Trauma Center can refer clients directly to the Financial Fitness Clinic for budgeting or tax assistance services and referrals can be tracked across the hospital. External electronic tools such as Healthify, One Degree, and others (see Table 9-2) include data tracking functions that can help health-care institutions better collect and track the social needs of their populations.

Clinic–community engagement

Resource mapping and referral models, such as the "Community Health Detailing" model developed in Los Angeles by HealthBegins (Box 9-2) or the HealtheRx approach in Chicago, foster a participatory, community-driven approach that leverages the knowledge and expertise of local residents to address social determinants of health and improve the capacity of clinics to help patients with social needs. These models use local residents to create and maintain databanks of community resources information.

Table 9-2. Electronic Social Determinants of Health Screening and/or Referral Platforms

Program	Website	Summary
One Degree	1deg.org	Screening and web-based algorithms to help any user find available community resources. Data tracking available
Purple Binder	http://purplebinder.com	Screening and web-based algorithms to help any user find available community resources. Includes texting options for patient follow-up. Data tracking available
HealtheRx	http://healtherx.org/	Community health information specialists and web-based platform to help any user find available community resources. Data tracking available
HelpSteps	https://www.helpsteps.com	Screening and web-based algorithms available to help any user locate available community resources.
Aunt Bertha	http://www.auntbertha.com	Web-based algorithms available to help any user locate available community resources.
211	211.org	Web- and phone-based databank of available community resources available to any user
Health Leads	https://Healthleadsusa.org	Non–web-based electronic algorithms to help users find available community resources. Use limited to program staff. Data tracking available
Healthify	Healthify.us	Non–web-based electronic screening and algorithms to help users find available community resources. Includes texting options for patient follow-up. Data tracking available

HealtheRx enlists community health information specialists to staff phone and web connection support.

Privacy/Security

Referral methods that link and track patients must be Health Insurance Portability & Accountability Act (HIPAA) compliant and must maintain patient privacy. Data use sharing agreements, business associate agreements, and other written policies must be considered for clinics seeking to share data with community partners or third-party vendors.

Clinic redesign efforts to address social, legal, and environmental factors are not complete unless they support continuity of care and routine follow-up. Clinics must also clearly assign responsibility for follow-up of specific tasks to individual care team members.

Box 9-2. HealthBegins "Community Health Detailing" Model

Goals

- Increase community residents' knowledge and efficacy to improve local social determinants of health.
- Improve care for patients with health-related social needs.

How It Works—Four Key Components

- Participatory, popular-education–based 3-month curriculum in which community residents learn about social determinants of health and local health-care delivery systems.
- Participatory resource mapping, where learners identify and map local community resources to improve social determinants of health.
- Online, searchable, geographic database, which allows health-care providers to find community resources (mapped by community members) for patients with social needs.
- "Detailing," in which community residents visit and educate health-care professionals about local social determinants of health and available community resources in order to streamline care for patients with social needs.

INCREASE HEALTH-CARE WORKFORCE TRAINING AND CAPACITY TO ADDRESS SOCIAL DETERMINANTS OF HEALTH

New functions will need to be integrated into the health-care team's roles if social needs are to be successfully addressed within the clinical arena. Team members' responsibilities will need to align with their skills to enable health-care systems to address a wider range of health determinants. Adoption of routine social and legal needs screening will require *clinical champions* who support the development and integration of social determinant screening and intervention as a critical component of health-care delivery. Medical legal partnerships (MLP), for instance, typically support both a legal services provider and a medical clinical champion. The MLP clinical champion facilitates the integration of legal screening into routine clinical care processes, and leads to QI, teaching, and research efforts. These clinical champions, whether

for MLP or other social determinants programs embedded in health-care settings, have been referred to by some as *Upstreamists*.[8] Armed with knowledge and skills related to the myriad intersections of public health and clinical medicine, *Upstreamists* bring a social determinants of health lens into clinic system transformations.

Beyond medical champions, however, health-care teams will need to adapt other *specific team roles* to ensure that members have expertise in asking about and managing relevant social needs, and that they are able to meet the demand for services and relevant follow-up in any particular area. Though electronic platforms help meet this demand by maximizing clinical efficiency as described earlier, trained staff are still essential. For instance, though most social service needs are traditionally referred to social workers, reimbursement barriers, social worker shortages, and issues of geographical and racial/ethnic and linguistic diversity may limit their capacity in many underserved settings.[20] Some hospitals and clinics have enhanced the capacity of social workers to operate at the top of their training by also incorporating paraprofessionals or volunteers to help triage and manage social needs. Health Leads, a nonprofit operating in six cities across the United States, uses trained college student volunteers to help manage patient social needs (healthleadsusa.org). CHWs can play important roles in facilitating team-based care that includes social and/or legal needs.[21,22] Some states—including New Mexico and Minnesota—have used state Medicaid funding to support CHWs and other nontraditional providers.[23]

The technological tools described earlier can help clinical staff efficiently manage social needs. For instance, once patients with food insecurity are successfully identified, electronic systems can automatically print Supplemental Nutrition Assistance Program (SNAP) applications and maps showing food pantries close to patients' homes. Staff with related expertise can then help families complete benefits applications and spend more time on complex issues. The Health Leads program, for instance, combines trained student volunteers with a sophisticated technology platform that identifies relevant community resources for patients. The volunteer advocates help patients complete forms, schedule appointments, and follow-up with social service agencies identified by the computerized algorithms. Tools that promote collaborative management of tasks among care team members, rather than tools that limit care management to one team member, are especially useful for patients with multiple social, legal, and environmental needs. Clinic performance measures for care teams as a whole and for specific service lines (e.g., clinicians, social workers, and care managers) can reinforce team accountability and quality of routine follow-up for patients with unmet social needs.

Families with complex legal needs related to social challenges may be referred to on- or off-site legal services for additional professional services. Articulating the legal provider's role in team-based clinical care, as well as in clinic transformation, is part of the work of the *National Center for Medical Legal Partnerships* (http://medical-legalpartnership.org). Legal staff can educate and supervise nonprofessional team members as well as be available for individual patient consultations and/or lead advocacy efforts at clinical and population levels. Mounting evidence shows that adding legal aid to the array of health-care services provided in underserved settings can improve patient health status[24] and be cost-effective.[25]

Existing models for addressing social needs such as those described earlier require distinct resources and personnel depending on the type of need. Generally, the more resource and training intensive an intervention, the higher its potential health impact, but the fewer the patients who may need it. For example, a volunteer-based community resource linkage program such as Health Leads incorporated into a clinical setting requires relatively few resources—primarily training and supervising volunteers—and can serve a significant number of patients with basic social resource needs. In contrast, a medical–legal partnership, which requires trained legal staff, may have greater potential to impact complex social determinants, but typically is needed by a smaller number of patients.

Since no single intervention can achieve a balance of breadth and depth in meeting the full spectrum of patients' social needs, a tiered model is most likely to efficiently maximize impact and scope (Figure 9-1). This tiered model integrates lower intensity/higher capacity interventions (e.g., automated referrals or nonprofessional consultations) that serve a wide spectrum of need and high numbers of patients, with higher intensity/limited capacity activities (e.g., social work or legal consultations) that will likely have significant impact for individuals, but serve fewer patients. In such a model, less expensive personnel address a broader range of social needs by participating in lower-tier interventions (e.g., providing utility shut-off letters) or using algorithms to refer more complex needs to professionals. Each clinical site can adopt context-specific interventions, selecting different staffing and intervention combinations targeted to their population's social needs and available resources. To maximize efficiency, the tiered workforce model will need to be built on a system-wide electronic screening and referral platform.

Finally, supporting staff and clinical champions in this area will require *dedicated learning collaboratives* to share and spread best practices, networks for peer support and mentorship, and opportunities for specialized training. For example, HealthBegins (healthbegins.org), a health

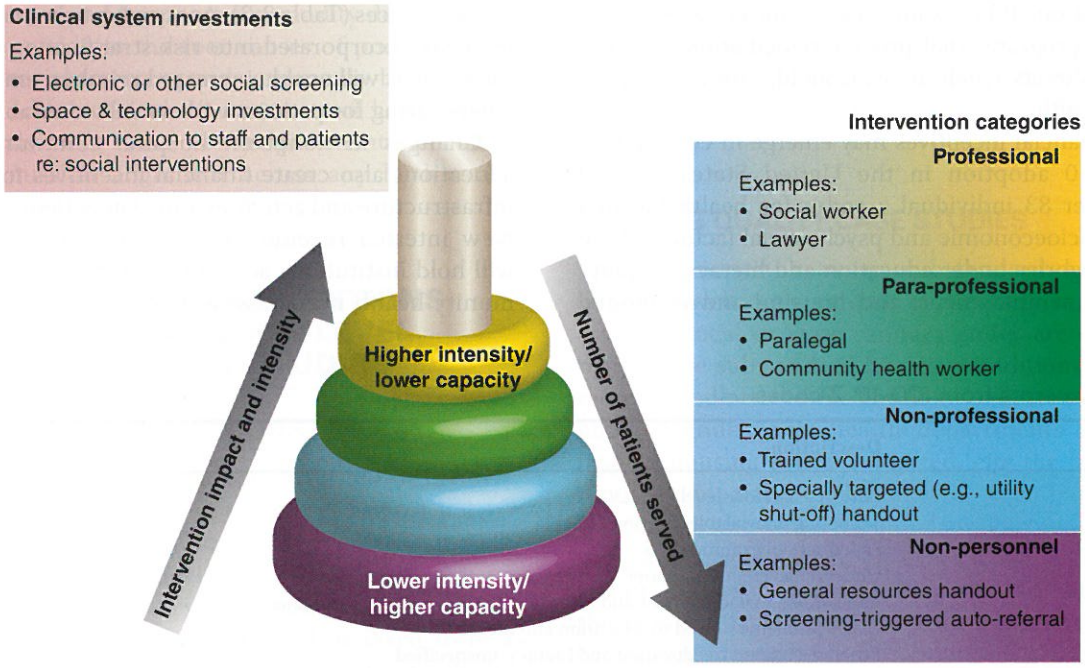

Figure 9-1. Workforce model for clinical social determinants of health interventions.

innovation incubator focused on vulnerable populations, has developed an online network and training platform for clinicians and partners interested in addressing social determinants of health in clinical settings (Box 9-3). The initiative, Practical Playbook: Public Health and Primary Care Together, includes a three-part web-based learning guide for public health and primary care partnerships (https://practicalplaybook.org). Additional communication training resources, such as those offered by the American Academy on Communication in Healthcare (http://www.aachonline.org), can be adapted to support provider engagement related to social determinants of health interventions.

Box 9-3. Common Pitfalls

Incorporating Social Determinants of Health Interventions in Clinical Settings

- Systematic screening for social, legal, and environmental health determinants is rarely performed using validated instruments.
- The entire health-care team is not trained on best screening practices or provided with up-to-date community referral resources.
- Community resources that provide educational, social, environmental, and legal support to patients are not identified, organized, and updated in a manner to facilitate easy referrals.
- Social, legal, educational, and environmental issues are not integrated into medical decision making.
- Staff is rarely held accountable for follow-up of social, legal, and environmental needs and referrals.
- Social and legal needs data collected in clinical settings are not applied to population health efforts or shared with other public health stakeholders.

FUNDING AND OTHER INCENTIVES

There are few explicit financial incentives for clinics to prioritize data collection and resource allocation focused on social determinants of health. Medicare and Medicaid EHR Incentive Programs are a major driver for EHR adoption nationwide, but Stage 1 and Stage 2 meaningful EHR use guidelines from the Office of the National Coordinator have not focused on social determinants of health. Stage 3 guidelines will include more on population-based care, including coordination with community-based resources.[26] Moreover, the 2014 PCMH accreditation standards from the National Center for Quality Insurance (NCQA) mention social determinants of health and are aimed to align with Medicare/Medicaid meaningful use guidelines, which include population management and coordination with community-based resources. Developing systematized social needs screening and resource interventions can help clinics achieve PCMH accreditation under the 2014 standards and thus PCMH-linked incentives from state and commercial payers. Furthermore, several states are already using Medicaid coverage to support nonmedical services. For instance, Rhode Island's lead abatement program[27] and Massachusetts'

Pediatric Asthma Pilot[28] show how Medicaid benefits can be used for programs that provide remediation for environmental threats (such as lead, mold, and rodents) to children's health.

Other financial incentives may emerge in conjunction with ICD-10 adoption in the United States ICD-10 includes over 83 individual z-codes for health hazards related to socioeconomic and psychosocial factors. These include categories under education and literacy, employment and unemployment, and housing and economic circumstances (Table 9-3). As social determinants increasingly are incorporated into risk stratification algorithms, these codes will enable increased reimbursement for providers caring for patients with social vulnerabilities.

Changes in nonprofit hospital community benefit allocations also create financial incentives for nonprofit infrastructure and activities aimed at patient social needs. New internal revenue service reporting requirements will hold institutions accountable for conducting a community health needs assessment every 3 years to assess

Table 9-3. Excerpts from ICD-10: Z-codes

Code	Description
Z55.0	Illiteracy and low-level literacy
Z55.1	Schooling unavailable and unattainable
Z55.2	Failed school examinations
Z55.3	Underachievement in school
Z55.4	Educational maladjustment and discord with teachers and classmates
Z55.8	Other problems related to education and literacy
Z55.9	Problems related to education and literacy, unspecified
Z56.0	Unemployment, unspecified
Z56.1	Change of job
Z56.2	Threat of job loss
Z56.3	Stressful work schedule
Z56.4	Discord with boss and workmates
Z56.5	Uncongenial work environment
Z56.6	Other physical and mental strain related to work
Z56.81	Sexual harassment on the job
Z56.82	Military deployment status
Z56.89	Other problems related to employment
Z56.9	Unspecified problems related to employment
Z57.0	Occupational exposure to noise
Z57.1	Occupational exposure to radiation
Z57.2	Occupational exposure to dust
Z57.31	Occupational exposure to environmental tobacco smoke
Z57.39	Occupational exposure to other air contaminants
Z57.4	Occupational exposure to toxic agents in agriculture
Z57.5	Occupational exposure to toxic agents in other industries
Z57.6	Occupational exposure to extreme temperature
Z57.7	Occupational exposure to vibration
Z57.8	Occupational exposure to other risk factors
Z57.9	Occupational exposure to unspecified risk factor
Z59.0	Homelessness
Z59.1	Inadequate housing, including inadequate space, lack of heating, and unsatisfactory surroundings
Z59.2	Discord with neighbors, lodgers, and landlord
Z59.3	Problems related to living in residential institution
Z59.4	Lack of adequate food and safe drinking water
Z59.5	Extreme poverty
Z59.6	Low income
Z59.7	Insufficient social insurance and welfare support
Z59.8	Other problems related to housing and economic circumstances
Z59.9	Problem related to housing and economic circumstances, unspecified
Z60.0	Problems of adjustment to life-cycle transitions
Z60.2	Problems related to living alone
Z60.3	Acculturation difficulty
Z60.4	Social exclusion and rejection
Z60.5	Target of (perceived) adverse discrimination and persecution
Z60.8	Other problems related to social environment
Z60.9	Problem related to social environment, unspecified

Note: Z-codes are unacceptable as principal diagnoses, but describe circumstances which influence health and can specify diagnoses.

community needs and support community development activities that address the root causes of poor health.[29] Supporting social screening and community-based interventions to address social determinants of health could help hospitals meet these new requirements, enabling innovative mission alignment across any health-care institution.

HOW CLINIC-LEVEL INTERVENTIONS CAN LEAD TO POPULATION-LEVEL INTERVENTIONS: CASE STUDIES

UTILITY SHUT-OFF PROTECTIONS

Many states have legal protections to avoid utility service shut-offs for nonpayment to protect against potential health consequences of losing electricity for people dependent on medical devices such as nebulizers or respirators. To maintain service in these instances, a utility shut-off protection letter is mailed or faxed from a health-care provider to a utility company stating that the provider cares for a patient with a chronic illness and that the patient's medical treatment depends on utility service. Barriers to including shut-off protection letters in routine clinical care include provider time, training, and lack of clinical infrastructure to support these activities.

The medical–legal partnership at BMC, MLP | Boston, devised a letter meeting all legal requirements for utility companies to maintain service that is now integrated into the BMC EHR. The letter can be autopopulated with the patient's demographic information and documents that the patient has a chronic serious illness, which the provider can specify with patient's permission. The letter's inclusion in the EHR makes it possible for providers to complete it quickly during patient appointments. Because of the EHR integration and associated trainings to increase provider awareness of utility shut-off consequences, the number of protection letters written in the BMC Clinic increased substantially. Within 2 years, the clinic saw a 300% increase in the number of completed protection letters—from 193 in 2005–2006 to 676 in 2008–2009, during a time of stable clinical volume. The addition of the shut-off protection letter to the EHR streamlined the process for providers and decreased clinician time spent on providing protection letters—from an estimated 30 minutes down to 30 seconds.[30]

After noting the increase in utility shut-off letters, MLP Boston worked to submit joint testimony from a lawyer and pediatrician documenting the undue burden of quarterly documentation requirements, particularly in light of chronic disease prevalence among low-income residents. The Department of Public Utilities accepted this testimony and changed to biannual income and medical status documentation requirements. The department also allowed physician assistants and nurse practitioners to provide medical certification letters. These policy changes arose from direct clinical experiences and benefitted populations beyond those served by the clinical institution.

HOUSING QUALITY CASE STUDIES

The connection between substandard housing and health is well documented, particularly in the case of asthma. Local or state sanitary codes are designed to make these substandard housing conditions illegal, and require landlords to fix housing conditions. To enforce housing code, local health departments periodically inspect housing and, if indicated, cite the landlord and require remediation. The medical–legal partnership in Cincinnati, the Child Health-Law Partnership (HeLP) program, began to screen every child admitted with asthma for problems with housing and refer them to the medical–legal partnership for additional assistance to address identified housing concerns. Eventually the hospital inpatient unit created a QI project to ensure that every child admitted was screened, and that every positive response was referred to the local health department for code enforcement. The QI team noted patterns when they mapped the identified cases of poor housing quality. They discovered system-wide problems in housing developments owned by a single landlord and the legal services agency brought the landlord to court. The court ordered remediation of the entire development, not just individual units. This resulted in improved housing for the entire population and prevented further housing-triggered asthma attacks.

Similar programs in Seattle linking asthma patients with community health workers, who perform home visits, provide education and resources to improve ventilation and decrease triggers to asthma have shown significant reductions in both asthma exacerbations and the need for urgent health-care visits. In a partner project, low-income housing units were built to reduce asthma triggers. Together these clinical care and community interventions decrease costs and improve health. (For tools to implement similar programs in your community, see http://www.kingcounty.gov/healthservices/health/chronic/asthma/past/HH2.aspx.)

CONCLUSION

By regularly taking "social determinants of health vital signs," such as food, housing, and utilities security, among many others, health-care sites take not only the "pulse" of their patients but also the "pulse" of their communities. Validated instruments exist to identify unmet social needs; other tools engage the entire health-care team in

efforts to intervene on these social factors in the clinical setting, often in partnership with community-based organizations and social service agencies. Leveraging electronic medical records for screening, evaluation and management, documentation, and referral for unmet social needs is increasingly becoming a reality. Furthermore, case studies now exist to demonstrate how addressing social determinants of health at the patient- and clinic-level can improve clinical care, enhance patients' quality of life, and lead to policy opportunities to enhance population health.

KEY CONCEPTS

- Health-care settings will need to identify core and custom measurement tools for unmet social needs, assign roles, and ensure training that best support interventions addressing social determinants of health for the population served.
- A wide variety of social determinants of health screening, triage, evaluation and management, referral, and follow-up tools exist.
- New funding models and incentive opportunities should promote wider dissemination of programs and practices that address the social needs of vulnerable populations in clinical settings.

CORE COMPETENCY

Sample Social Screening Items

Social Determinant Domain	Screening Questions	Reference
Income	Does your family have enough money at the end of each month?	Keller et al 2008[31]
	Are you having problems receiving WIC, food stamps, daycare vouchers, medical card, or SSI?	Klein et al 2011[32]
	Do you ever have difficulty making ends meet at the end of the month?	Brcic et al 2010[15]
Food security/ hunger	• Have you ever been worried whether your food would run out before you got money to buy more? • Within the past year has the food you bought ever not lasted and you didn't have money to get more?	Hager et al 2010 [33]
	For each of these statements, tell me whether the statement is often, sometimes or never true for your household over the past 12 months. • I/we worried whether my/our food would run out before I/we got money to buy more • The food I/we bought just didn't last, and I/we didn't have money to get more. • I/we couldn't afford to buy balanced meals.	Economic Research Service 2012[34]
	Do you and your child have enough healthy food (including any special dietary needs) to eat every day?	Keller et al 2008[31]
	Do you worry that your food will run out before you get money or food stamps to get more?	Klein et al 2011[32]
	In the past month, was there any day when you or anyone in your family went hungry because you did not have enough money for food?	Kleinman et al 2007[35]
Housing costs	Do you have any concerns about not being able to pay your rent or mortgage?	Dacchille et al[36]
	Do you think you are at risk of becoming homeless?	Garg et al 2007[37]
	Do you have any concerns about your housing (safety, affordability, stability)?	Keller et al 2008[31]
	Are you being threatened with eviction or losing your home?	Klein et al 2011[32]
	Are you having any problems with housing (e.g., needing a new place to live or assistance locating housing—including nursing home placement/ assisted living)?	Bikson et al 2009[38]/Cook et al 1996[39]
Housing conditions	Are you having housing problems (overcrowding, roaches, rodents, utilities, mold, lead, etc.)? • Are you having problems with your housing? • Are you threatened with eviction or losing your home?	Klein et al 2011[32] HealthBegins.org (http://healthbegins.ning.com/page/social-screening-tool)

	Do you have any concerns about poor housing conditions such as mice, mold, and cockroaches?	I-HELP/ NCMLP[36]
Personal safety	Do you have any concerns about your family's day-to-day safety or stability?	Keller et al 2008[31]
	"From speaking to families, I have learned that violence in the home is common and now I ask all families about violence in the home. Do you have any concerns about violence in your home?"	Dacchille et al[36]
	• Have you ever been in a relationship in which you were physically hurt or threatened by a partner? • In the past year, have you been afraid of a partner? • In the past year, have you thought of getting a court order for protection?	Dubowitz et al 2008[40]
	How often does your partner: • Physically hurt you? • Insult you or talk down to you? • Threaten you with harm? • Scream or curse at you?	Chen et al 2007[41]
	• Have you been hit, kicked, punched, or otherwise hurt by someone in the past year? If so, by whom? • Do you feel safe in your current relationship? • Is there a partner from a previous relationship who is making you feel unsafe now?	Feldhaus et al 1997[42]
	Do you feel that you and/or your children are unsafe in your relationships?	Klein et al 2011[32]
Education	What is the highest grade/year of school completed? (elementary, high school, college, graduate scales)	MacArthur Network SES
	Do you have a high school degree? If no, would you like help getting a GED?	Garg et al 2007[37]
Employment	Are you having any employment or career issues? Do you have a job? If not, would you like help with finding employment?	Bikson et al 2009[38]/Cook et al 1996[39] Garg et al 2007[37]
Neighborhood violence	• Do you feel safe walking alone during the day? • Do you feel safe walking alone during the night? • Do you feel afraid to let your children (grandchildren) play outside?	Johnson et al 2009[43]

RESOURCES

Robert Wood Johnson Foundation Health Care's Blind Side Report. http://www.rwjf.org/content/dam/farm/reports/surveys_and_polls/2011/rwjf71795

Positively Impacting Social Determinants of Health: How Safety Net Health Plans Lead the Way. 2014. http://www.communityplans.net/Portals/0/Fact%20Sheets/ACAP_Plans_and_Social_Determinants_of_Health.pdf

Health Begins: Healthbegins.org

National Center for Medical Legal Partnerships: Medical-legal-partnership.org

Regional Bay Area Help Desk Consortium: Bayareahelpdesks.org

Association of Academic Health Centers: Wherehealthbegins.org

Health Providers Against Poverty: Healthprovidersagainst-poverty.ca

DISCUSSION QUESTIONS

1. Determine how social, legal, and environmental needs screening is currently conducted in your clinical setting. How could you learn more about the "custom" screening questions that are most suitable to your clinic population? Is it possible to systematize "core" and "custom" screening items, perhaps by incorporating them into the EHR? Who would carry out these measures?
2. Collect information from cross-disciplinary providers about social, legal, and environmental community resources they use and where that information is stored. Could that information be shared across the clinical setting?
3. Discuss ways that your clinic assigns roles for social screening, referral, and follow-up. Are individual team members held accountable for their activities to screen for and address social determinants of health? If so, how? If not, why not?