



Transforming Healthcare Delivery by Addressing Social Determinants of Health: Implementation Lessons From the Field

Citation

Aung, Khin-Kyemon. 2020. Transforming Healthcare Delivery by Addressing Social Determinants of Health: Implementation Lessons From the Field. Doctoral dissertation, Harvard Medical School.

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**Scholarly Report submitted in partial fulfillment of the MD Degree at
Harvard Medical School**

Date: 01 March 2020

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Scholarly Report Title: Transforming Healthcare Delivery by Addressing Social Determinants of Health: Implementation Lessons from the Field

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ABSTRACT

Title: Transforming Healthcare Delivery by Addressing Social Determinants of Health: Implementation Lessons from the Field

Purpose: There is mounting evidence that social determinants of health (SDOH) such as nutrition, housing, and transportation significantly shape health outcomes. Historically, health care organizations have played a limited role in addressing patients' social needs. However in recent years, as new financial incentives emerge, an increasing number of health care systems are experimenting with interventions to identify and address SDOH. Despite growing enthusiasm, a 2019 study found that only 24% of hospitals and 16% of physician practices currently screen their patients for health-related social needs. One key barrier to broader adoption is the operational complexity in implementing SDOH assessment processes. The purpose of this article is to discuss the key considerations for organizations interested in designing and implementing SDOH screening and referral programs, especially in primary care or other outpatient settings.

Methods: Nine qualitative semi-structured in-depth interviews were conducted with individuals from four health systems in the Greater Boston area participating in the MassHealth Accountable Care Organization program. Interviews were 30-60 minutes long and conducted in-person or by phone. Each interviewee was selected because they played a pivotal role in developing and/or leading social determinants of health screening and referral initiatives within their health system and/or have frontline experience conducting SDOH screenings and referrals within their organization. Interviews were either audio-recorded or detailed notes were taken. Interviews were conducted using a standardized interview guide.

Results: Four critical operational elements that health systems must consider when designing a SDOH program include: (1) the depth and breadth of the screening and referral services offered; (2) how new SDOH workflows will integrate into existing clinical pathways and IT systems; (3) the staffing requirements and training needed to support the care team; and (4) how outcomes will be collected and success will be measured over time.

Conclusions: Addressing the social needs of patients has tremendous potential to influence the trajectory of their health over time. However, evidence on which social interventions are most effective in improving health and reducing costs is limited. Further research is needed to determine whether SDOH screening and referrals lead to improved outcomes and if so, how best to implement processes to maximize impact.

Word Count: 369

BRIEF DESCRIPTION OF YOUR PROJECT FOR YOUR MASTER'S THESIS

Social determinants of health are non-medical factors that can impact health and include forces such as poverty, education, exposure to environmental toxins and community violence, employment, social support networks, and access to health care. Addressing these social factors is critical to improving the health of individuals and communities. Frontline health care organizations have a unique opportunity to meet their patients' medical and social needs. Historically, these institutions have not been designed to tackle broader social issues, but this is beginning to change under innovative payment models. New initiatives are now emerging within health care systems to screen for social needs and deliver non-medical interventions, but there are few studies that critically examine how to implement screening and referral processes. The goal of this project is to investigate how health care organizations are implementing these new models and identify best practices and recommendations.

DESCRIPTION OF MY ROLE IN DESIGN, EXECUTION, ANALYSIS, AND WRITING

I was responsible for writing the scholarly project proposal, developing the research question, and preparing the standardized interview guide. I worked closely with my mentors to select interview sites and interviewees. I was responsible for scheduling and conducting site visits and interviews with practice leadership, physicians, nurses, social workers, case managers, and other health care professionals as appropriate. I reviewed interviews, recorded key findings, and inductively analyzed the data. Finally, I took the lead in drafting the manuscript below. I will serve as primary author of any manuscripts that are written based on the data.

APPENDIX: MD/MBA THESIS

INTRODUCTION

The social and environmental conditions in which people live, work, and play undoubtedly shape their health outcomes. Access to healthy food, stable housing, or convenient transportation not only improves morbidity and mortality, but also decreases acute care utilization [1-3]. Historically, health care organizations have played a limited role in addressing patients' social needs. However in recent years, as innovative payment models emerge, an increasing number of payers and providers are experimenting with interventions to identify and address social determinants of health (SDOH).

One such intervention is screening for social needs and connecting patients to social services, especially in primary care settings. SDOH screening and intervention is recommended by the American College of Physicians and numerous other professional medical societies [4]. There are now several initiatives across all levels of government and the private sector to incentivize these efforts. For example, the Center for Medicare and Medicaid Innovation is testing models that incorporate SDOH delivery, and nineteen states now require Medicaid managed care plans to screen for and provide referrals for social needs [5-6]. Medicare Advantage plans are also seeking to address SDOH by restructuring the benefits they offer [7]. However, despite growing enthusiasm, a 2019 study found that only 24% of hospitals and 16% of physician practices currently screen their patients for health-related social needs [8].

One potential barrier to broader adoption is the operational complexity in building new processes and capabilities. There are few studies in the literature that provide guidance to health care organizations on how to start a SDOH screening and referral program. In this paper, we survey industry experts, practitioners, and leaders from four academic medical centers that are in the process of piloting SDOH assessment models in primary care clinics to identify key operational elements and common challenges. We conclude with best practices for future primary care organizations interested in implementing their own SDOH assessment programs.

METHODS

Nine qualitative semi-structured in-depth interviews were conducted with individuals from four academic health systems in the Greater Boston area participating in the MassHealth (Medicaid) Accountable Care Organization (ACO) program. Launched in March 2018, the MassHealth ACO program incentivizes physicians, hospitals, and other health care providers to work together to deliver higher quality care at lower costs. One of the goals of the ACO program is to help health care organizations build capacity to address SDOH. To this end, each ACO participant is mandated to implement health-related social needs screening. The percentage of patients' screened annually is factored into the ACOs overall performance, which in turn affects the total financial payoff the participants receive.

Interviews were 30-60 minutes long and conducted in-person or by phone between December 2018 and April 2019. Each interviewee was selected because they played a pivotal role in developing and/or leading social determinants of health screening and referral initiatives within their health system and/or have frontline experience conducting SDOH screenings and referrals

within their organization. Please see Appendix 1 for list of interviews conducted. Interviews were either audio-recorded or detailed notes were taken. Interviews were conducted using a standardized interview guide. Questions included topics important to program development and health care operations: workflow for screening and referrals, facilitators and barriers to implementation, electronic health record integration, the roles of care team members, community partnerships, and recommendations for other health systems (Appendix 2). Two physician-researchers and faculty from Harvard Medical School and Harvard Business School—both with experience in health care delivery innovation—reviewed and approved the interview guide. Interviews were inductively analyzed to surface key themes, common challenges, and best practices.

RESULTS

KEY OPERATIONAL ELEMENTS

Scope. The scope of SDOH screening and referral programs varied widely across the health systems—both in the population served and the breadth and depth of assistance provided. Some health systems adopted universal screening, where all patients were evaluated regardless of their medical, behavioral health, and social complexity. Others decided to implement targeted approaches where only individuals enrolled in the ACO model were screened. Programs noted a tension between a desire to provide assistance to everyone and practical resource constraints (e.g. staffing) that limited the number of patients they could engage. The underlying philosophy driving the scope of screening also differed—while some cited a moral obligation to screen everyone to provide equitable care, others noted that the ACO funding from the state should be directed primarily to care for individuals enrolled in the state program.

Another important consideration was determining the depth of interventions to provide patients. The intensity of support, frequency of follow-up, and the range of needs to be addressed were wide-ranging. All health systems implemented clear tiers of support with pre-determined eligibility criteria for each stratum. For example, in some organizations, patients in the lowest risk tier were provided handouts of community organizations tailored to their social needs. Higher risk patients were matched with more intensive case management and supported with sustained engagement. All health systems indicated the importance of not only identifying whether patients had social needs, but also asking whether they wanted help with them. Resources provided ranged from handouts and in-person social work consults to e-referrals directly to community-based organizations.

Workflow. Decisions on whom to screen and how to refer patients to social resources significantly influenced primary care clinic operations. Universal screening eliminated the need to develop and train staff on divergent workflows, but in these cases, health systems still had to devise standardized processes to determine whether patients were due for screening (e.g. the medical assistant checks to see whether a patient is due for screening before the visit). ACOs where patients were selectively screened had to develop indicators in the electronic health record (EHR) to flag who those eligible individuals were.

Overall, ACOs sought to minimize disruption to existing clinical workflows. All the programs tried to automate as many tasks into the EHR as possible to reduce burden on clinical staff. Common strategies to alleviate manual entry included embedding SDOH questionnaires into EHRs,

automatically generating ICD-10 codes for clinicians, and developing e-referral systems to community-based organizations. Figure 1 illustrates the core components of a SDOH workflow. Figure 2 is a process map of how the Cambridge Health Alliance—an academic and community health care system in Massachusetts—has designed their screening and referral processes.

Care Team. All ACO participants cited the importance of utilizing interdisciplinary care teams to address SDOH and clearly delineating roles and expectations upfront. Though the exact composition of the care teams varied, core team members generally included front desk staff, medical assistants, nurses, primary care clinicians (both nurse practitioners and physicians), case managers, and social workers. New roles were also created within the health care systems. Community resource coordinators or specialists, for example, were tasked with following up with patients within a few days after their appointment. They were responsible for further triaging the patient’s social needs and connecting patients with local resources. As resident experts in community resource navigation, they provided expertise in short-term case management.

Integrated longitudinal complex care management teams managed more high-risk patients with chronic, complex physical, behavioral health, or social needs. These interdisciplinary teams featured a mix of primary care clinicians, nurses, social workers, pharmacists, nutritionists, and other allied health professionals. These providers all closely work together to develop, coordinate, and streamline care plans and proactively help patients gain access to critical gaps in care.

Data and Evaluation. Developing reports to measure the impact of the SDOH program was important to all ACOs. Given the early stage of implementation, organizations were primarily focused on process measures such as the number of eligible patients who had been screened, the number of patients who were missed during clinic appointments, and the percentage of patients who received timely follow-up. Programs had aspirations to measure the long-term impact of their SDOH interventions including changes in patient satisfaction, total cost of care, acute care utilization, and health outcomes.

COMMON CHALLENGES

Common challenges broadly fell into one of four categories: operational, resource, participatory, and data and evaluation. Operational challenges included issues such as gaining consensus on who to screen (e.g. target population), where to screen (prior to the visit or in the waiting room), when to screen (e.g. frequency), and which screening tools to use. Integrating SDOH questionnaires into the EHR and building workflows that well integrated in EHRs were also key challenges. Resource limitations—such as constraints on budgeting, hiring new staff, or reallocating existing staff members’ time—were other commonly cited challenges. Participatory challenges pertained to the willingness of clinic staff to engage in SDOH assessment and take on more responsibilities. Some ACOs reported that staff was divided on whether they believed health care organizations should take on the role of addressing patients’ non-medical needs. To incentivize participation, occasionally financial incentives were utilized. In rare cases, clinicians retired or left the organization out of frustration with the increasing scope of primary care. Finally, ACOs also noted challenges with measuring impact of SDOH programs and obtaining relevant data from community partners.

BEST PRACTICES

Best practices can be divided into three stages of implementation: the planning phase, rollout phase, and monitoring phase. In the planning phase, organizations should start by engaging both senior leaders and frontline providers—everyone who will interact with patients from the time they check into the clinic to the time their case is closed. Soliciting the input of all the members of the staff and reviewing suggestions for continual process improvement will be vital to success. Tailored training must also be provided to the members of the care team. Those who administer the SDOH questionnaire, for example, may need training on how to ask about sensitive topics such as personal safety and food insecurity. Clinicians, on the other hand, may need information about the social resources available within the health system and criteria for which to escalate cases.

In this early phase, primary care clinics also should map their existing capabilities and those of the broader health system they are affiliated with. For areas where there are service gaps, they must determine whether to pursue new partnerships with community-based organizations, internally develop capabilities, or hire external expertise. Health systems should engage EHR vendors early in the pilot design and decide whether other vendors will be necessary. Aunt Bertha and Unite Us—leading community resource search and referral management platforms—are gaining recognition as valuable resources. Adopting out-of-the-box solutions such as these may be the most convenient option, especially early on. However, organizations will need to explore how such platforms integrate with existing IT systems and whether these tools offer the customization necessary to serve their patient populations

In the rollout phase, the impact of the pilot on clinic throughput and productivity must be measured carefully. Staff should be observed in person as they administer the SDOH screening questionnaire, input results, and counsel patients. Additional training and support must be provided until everyone is comfortable with the new protocols. Especially during this phase, rapid iteration will be critical, and can be carried out via frequent team meetings to identify barriers, review early results, and incorporate feedback.

Finally, in the monitoring phase, evaluation of the pilot will be at the forefront. Health systems must be explicit about progress on key performance indicators and whether the pilot is meeting criteria to scale. Organizations may also want to consider offering financial incentives to staff to compensate for extra time or for meeting performance benchmarks. Table 3 shows a list of questions that health systems can ask to ready themselves for implementation.






DISCUSSION

Addressing the social needs of patients has tremendous potential to influence their trajectory of health over time, but systematically identifying patients' social needs in medical settings requires new approaches to care delivery. The purpose of this study was to identify key considerations for organizations interested in designing and implementing their own SDOH screening and referral programs. In this study, four critical operational elements were identified: (1) the depth and breadth of the screening and referral services offered; (2) how new SDOH workflows will integrate into existing clinical pathways and IT systems; (3) the staffing requirements and training needed to support the care team; and (4) how outcomes will be collected and success will be measured over time.

While there is growing evidence that patients’ social conditions impact their health outcomes, data on whether social interventions lead to cost savings is mixed. While some interventions, such as providing tailored medical meals or transportation to medical appointments, have shown cost savings, other initiatives such as building housing have shown tepid results [9-11]. There is also a broader question about whether health care systems should be addressing social needs and whether such efforts inadvertently weaken other social institutions by shifting funding and resources to health care [12-13]. These questions are multifaceted and further data and evaluation will be necessary to clarify the long-term consequences of these efforts.

The American Medical Association in partnership with private insurers and other interest groups have recently been unveiling new ICD-10 codes specifically for SDOH. Creating a broader set of codes as well as quality metrics will help organizations more accurately capture data, track their performance, and compare results. The Centers for Medicare and Medicaid Services has also finalized a rule that expands the ability of health plans to cover non-medical interventions such as meal delivery for patients facing food insecurity, home improvements for patients with disabilities, or medical transportation [14]. These kinds of flexible arrangements have tremendous opportunity to spark more innovation and creativity in comprehensively meeting the diverse social needs of all patients.

Table 1: Core Components of Social Needs Screening and Referral Workflow

<p>STEP 1: Initial Screening and Assessment</p>  <ul style="list-style-type: none"> • Patient completes screening questionnaire in advance of the visit, in the waiting room, or with the assistance of a health care provider (e.g. medical assistant, nurse)
<p>STEP 2: Clinical Documentation</p>  <ul style="list-style-type: none"> • Health care provider documents the patient’s questionnaire results into the EHR (unless screening tool is completed electronically by patient and automatically loaded) • Questionnaire is scored and domains for which patient screens positive are revealed
<p>STEP 3: Triage and Stratification</p>  <ul style="list-style-type: none"> • Based on screening results, patient is stratified to a risk tier and their level of need is matched with appropriate resources
<p>STEP 4: Referral to Community Resources</p>  <ul style="list-style-type: none"> • Clinician reviews results and offers resources based on patient’s level of need (e.g. handout with local resources, follow up with community health worker). • If needs are urgent, patient may be seen by social worker that day
<p>STEP 5: Follow-Up and Closing the Loop</p>  <ul style="list-style-type: none"> • Community health worker or other staff member follows up with patient and provides tailored resources and support; criteria for closing cases must be predefined

Case Study: Cambridge Health Alliance (CHA) Social Needs Screening and Assessment

The Cambridge Health Alliance is one of eighteen participants in the MassHealth Accountable Care Organization program. Participating ACOs are required to screen their patients for health-related social needs. The percentage of patients screened annually gets factored into the ACO's performance score, which in turn affects the total financial payoff received.

The Cambridge Health Alliance serves approximately 160,000 individuals in the Greater Boston area—including 30,000 patients in the ACO model. They began implementing their screening and referral process in June 2018 and this effort now encompasses 14 adult primary care clinics, 3 adolescent primary care clinics, multiple outpatient surgical clinics, and specialty clinics in endocrinology, psychiatry, oncology, and women's health. Their goal is to ultimately implement social needs screening and assessment in outpatient, inpatient, and emergency settings.

Table 2: Process Map – CHA Adult Primary Care Clinics

Step	Process	Primary Role
1	Medical assistant (MA) reviews list of patients for the day, checking the health maintenance section on the EHR. If the patient has not had a screening in the past year, the MA provides the front desk staff with a screening questionnaire for the patient	MA
2	Front desk staff provides patient with paper screening packet during check-in	Front desk
3	After rooming the patient, the MA reviews the screening tool results with the patient	MA
4	The MA enters the screening questionnaire results into the EHR.	MA
5	When the meets with the patient, he or she reviews the screening results with the patient and asks follow up questions as needed. May engage in warm handoff with social worker or patient resource coordinator in the office.	Clinician (MD/NP)
6	Based on the screening results, the EHR prompts clinicians to add SDOH concerns to the problem list and add associated ICD-10 codes to the encounter.	Clinician (MD/NP)
7	Based on the patient's zip code and screening results, a list of tailored resources and phone numbers to call are automatically appended to the patient's after-visit summary.	Automated
8	If the patient has indicated in the screening questionnaire that they are interested in receiving additional help with SDOH concerns, a patient resource advocate (PRC) will follow up via phone, usually within 2-3 days. If the patient cannot be reached within 2-3 tries, then a follow-up letter is mailed.	PRC
9	The PRC will provide short-term case management, helping patients find and navigate eligible resources. If more intensive or support is needed, patient will be referred to the complex care management team (CCM).	PRC
10	The CCM team assists high-risk patients, determined by factors like acute care utilization and total medical expenditures. Duration of assistance varies.	CCM (often RN/LCSW)

MA = Medical Assistant, MD = Medical Doctor, NP = Nurse Practitioner, PRC = Patient Resource Coordinator, RN = Registered Nurse, LCSW = Licensed Clinical Social Worker

Table 3: Key Questions for Implementation Planning

Phase	Components	Key Questions
Planning	Building the team and broad support	<ul style="list-style-type: none"> • Who will be part of the implementation team? • Is there both grassroots and leadership support?
	Screening tool selection	<ul style="list-style-type: none"> • Which screening tool will be used? • How many social domains will be screened? • Will questions be customized for the organization’s unique patient population? • Are the screening questionnaire and referral resources available in multiple languages?
	Staffing	<ul style="list-style-type: none"> • What is the role of each existing staff member? • Is there appropriate staffing available? If not, who else needs to be involved?
	IT integration	<ul style="list-style-type: none"> • How will the screening tool and referral pathways be integrated into the EHR? • Are there other platforms or data systems that need to be incorporated?
	Community partnerships	<ul style="list-style-type: none"> • Who are the existing community partners? • What are the social domains that are well supported and where are there gaps? • Are there opportunities for new community partnerships or collaboration?
Rollout	Training	<ul style="list-style-type: none"> • What are the training materials providers will need to start the pilot? What will they need for ongoing development of knowledge and skills?
	Rapid cycle evaluation	<ul style="list-style-type: none"> • How does the pilot affect clinical operations (e.g. throughput, productivity)? • Are patients satisfied with the new processes? • How many patients are screening positive and are they getting help they need in a timely manner? • What is working well? What are areas for improvement?
Ongoing monitoring	Performance management	<ul style="list-style-type: none"> • How will team members be incentivized to carry on this work and meet performance benchmarks?
	Communication plan	<ul style="list-style-type: none"> • How will the implementation team communicate with each other, with providers, and with senior leadership as the pilot evolves?
	Long-term evaluation	<ul style="list-style-type: none"> • How will success be measured? • How will the pilot be scaled?

Appendix 1: List of Interviewees

Name	Organization	Role (at the time of interview)
Kirsten Meisinger, MD	Cambridge Health Alliance	Medical Staff President and Regional Medical Director Medical Staff President and Regional Medical Director
Lisa Brukilacchio, OTR/L, Ed.M	Cambridge Health Alliance	Director, Somerville Community Health Agenda
Fiona Mccaughan, RN MS	Cambridge Health Alliance	Nurse Leader, ACNO Ambulatory Care
Eric Weil, MD	Massachusetts General Hospital	Medical Director, Massachusetts Hospital Medicaid ACO
Kristen Risley, PMP, MSW	Massachusetts General Hospital	Senior Project Specialist, MGH Medicaid ACO
Marc Cohen, MD	Beth-Israel Deaconess Medical Center	Medical Director, Internal Medicine, Primary Care
Doug Hsu, MD MPH	Beth-Israel Deaconess Medical Center	Medical Director, Medicaid BIDCO
Lynda Seletsky, LICSW	Beth-Israel Deaconess Medical Center	Senior Clinical Social Worker
Pablo Buitron de la Vega, MD	Boston Medical Center	Associate Professor of Medicine, Boston University

Appendix 2: Interview Guide

PRACTICE CONTEXT

1. Can you tell me about the demographics of the patient population served by this organization, specifically race/ethnicity and socioeconomic status?
2. What is the staffing model? How many MDs, NPs, MAs, case managers, social workers, and community outreach workers are there? What is the panel size per provider?
3. What is the basic payer mix of commercial, Medicare, Medicaid, and duals? How many patient lives (or % of patients) are covered under risk-based contracts or value based payment models such as ACOs, BCPI, and PCMH?

NEEDS ASSESSMENT

1. Does your practice have a systematic approach to identifying or meeting social needs of its patients? Examples of social needs may include housing, transportation, nutrition, medication assistance, childcare, or eldercare.

If so, can you tell more about it?

- Do you use any screening tools to identify patients with unmet social needs?
 - Is there a formalized risk assessment process?
 - Do you use claims or other quantitative analytic methods to systematically identify non-medical needs across the entire patient population?
 - Are patients segmented into risk groups based on medical, behavioral health, or social complexity?
2. What are the most pressing social needs that impede patients served by your organization from receiving optimal care?
 3. Whose responsibility in the practice is it to identify unmet non-medical needs?
 4. Once social needs have been identified, what is the workflow to connect patients to available resources?
 - Who are patients referred to after screening?
 - Who follows up on patients' needs longitudinally?
 - How frequently is follow up scheduled?
 - How is progress tracked?
 5. Is there a forum for medical teams to discuss social needs of patients as a group? How frequently does this occur? Who is present in these meetings? How are social services integrated into medical care delivery?
 4. How are these services / programs paid for?
 5. What are the gaps that still exist in meeting patients' non-medical needs?

PROGRAM DEVELOPMENT

Internal

1. Are there any internal resources that have been designed to meet non-medical needs of patients (e.g. housing, food access, transportation, legal services, job training, financial literacy, educational programs)?
 - What are the services offered?
 - Who is eligible for these services?
 - How many patients are using these services?
 - How has the program(s) evolved or changed over time?
 - How have these resources been funded?
 - How well do you think services are integrated into medical care? What could be improved?
2. What is working well and what are the major challenges or barriers to developing internal resources?
3. What's the role of leadership versus patient and staff input for development of new programs for patient populations?

External

4. Are there partnerships with other organizations / community based programs to address patients' non-medical needs?
5. What have been the major challenges or barriers that your organization has faced with developing and maintaining partnerships?

Outcomes

6. Is success of these programs measured? If so, how?
 - Are there quality measures used to evaluate these programs?
 - Any data on patient satisfaction?
 - Any data on health outcomes or cost savings?

FUTURE DIRECTIONS

1. To what extent has your approach to addressing social determinants of health been affected by the changing payment landscape (e.g. risk based contracts)? What are you hopeful about or worried about?
2. What are changes or additions you would like to make to the services offered currently within the organization?

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