Use of Social Referral Platforms in the Primary Care Setting – Annotated Bibliography

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Abstract

Background – The sociopolitical determinants of health (SDOH) are increasingly understood as some of the most important drivers of health outcomes and inequities in the United States. Structural racism ensures members of the BIPOC community are disproportionately represented among people struggling with SDOH, and this is hauntingly reflected in unacceptable disparate health outcomes in the U.S. The modern family physician must be armed with tools not only to help the patient at the bedside, but also to address SDOH. Resource referral platforms provide physicians with information about community resources and often offer a bidirectional referral system to allow patients to access these resources.

Methods – One of the main objectives for this annotated bibliography was to conduct a thorough search of the current literary landscape relating to the ways in which SDOH are being addressed in a clinical setting, specifically relating to the use of resource referral platforms. A literary review was conducted using the online database PubMed.gov. Articles suggested to us by colleagues and experts in the field were also included in the final report. These articles were screened and reviewed for relevance to the topic and to family physicians and for novelty of data and discussion. A total of 16 papers were included for discussion in this annotated bibliography. They represent a general overview of the literary landscape pertaining to SDOH referral platforms, and ways to address SDOH in the primary care setting.

Results – Several broad rebricks emerged during analysis related to various areas of addressing Social Determinants of Health (SDOH) in the clinical setting including general background on SDOH, referral platforms, and screening strategies, overview of current practices and strategies, lessons from experience in the field, and best practice recommendations.

Conclusion – When combined with SDOH screening in the clinic, these referral platforms can provide a powerful tool for thinking about and working to address SDOH in the family medicine setting. Primary care physicians throughout the country are increasingly using these systems to help address SDOH. It is our hope that the following annotated bibliography is able to provide the reader with an overview of the current literary landscape pertaining to these SDOH screening platforms and their use in the primary care setting, and to orient the reader to the potential advantages and challenges of setting up and using these systems in their own practices.

Background:

The sociopolitical determinants of health are increasingly understood as some of the most important drivers of health outcomes and inequities in the United States. Sociopolitical determinants of health have been estimated to account for approximately 80% of health outcomes compared to only 20% for in person health care (Magnan S). Take, for example, some commonly discussed and studied SDOH: financial insecurity, housing insecurity, and education.

Low socioeconomic status is associated with many adverse health outcomes including shorter life expectancy, higher infant mortality rates, and higher mortality rates for the 14 leading causes of death in the United States[1]. According to a landmark study by Chetty et. al, the most affluent one percent of the US population have a life expectancy almost 15 years greater for men and 10 years greater for woman than their peers in the poorest one percent[2]. Furthermore, people experiencing homelessness have shorter life expectancies, higher morbidity, and higher usage of acute hospital services than their housed counterparts, and have a life expectancy approximately 12 years shorter than the general US population[3,4]. People experiencing homelessness also endure disproportionately higher burdens of chronic and acute disease including approximately two times the rates of diabetes, hypertension, and heart attacks than their housed peers[4]. The gradient between higher levels of education and better health outcomes is also well understood with nearly all health outcomes strongly associated with higher levels of education[5].

These sociopolitical determinants of health are also primary drivers of unacceptable racial health inequities in the United States. The scourge of structural racism, implicit biases, and discrimination, means that black, brown, and indigenous people are much more likely to live below the poverty line, experience homelessness, and be denied educational opportunities than their white peers[3,5,6,7,8,9]. Based on 2018 US census data, 20.8% of Blacks, 17.67% of Hispanics and 25.4% of indigenous people live below the US poverty line compared to just 8.1% of Non-Hispanic whites[7,8]. Black people in the United States are also disproportionately represented in the homeless population making up 39.4% of people experiencing homelessness compared to only 12.7% of the entire US population[10,11,12]. Members of the BIPOC community are also less likely to attain a bachelor’s degree when compared to their white peers with only 14% of indigenous people, 29% of black people, and 21% of Hispanic people obtaining a bachelor’s degree compared to 45% of whites[9].

The disproportionate representation of the BIPOC community among people struggling with negative social determinants of health is hauntingly reflected in the unacceptable disparate health outcomes in the United States. BIPOC women in the US are two to three times more likely to die from pregnancy related causes than white women[13]. Black Americans are 30% more likely to die from cardiovascular disease, twice as likely to have a stroke, and have a higher death rate from acute coronary syndrome than their white peers[14]. Racial and ethnic minorities also experience higher rates of illness and death across a number of chronic disease conditions including diabetes, hypertension, obesity, asthma, and heart disease when compared to their white peers[15].

It is clear, therefore, that the modern family physician must be armed with skills and tools not only to help the patient at the bedside, but also to leverage resources and partnerships in the community to help address these up-stream determinants of health. One of the most exciting tools emerging to address these social determinants of health in a clinical setting are the community resource referral platforms. These platforms generally allow physicians access to a database of information pertaining to community resources that work to address social

determinants of health (SDoH) and often offer a bidirectional referral system to allow their patients to connect with and access these resources. When combined with SDOH screening in the clinic, these referral platforms can provide a powerful tool for thinking about and working to address the SDOH in the family medicine setting. This annotated bibliography is intended to provid an overview of the current literary landscape pertaining to these SDOH screening platforms and their use in the primary care setting and to orient the reader to the potential advantages and challenges of setting up and using these systems in their own practices.

Methods

One of the main objectives for this annotated bibliography was to conduct a thorough search of the current literary landscape relating to the ways in which SDOH are being addressed in a clinical setting, specifically relating to the use of resource referral platforms. First, we conducted a literature review of the online database PubMed.gov. The search criteria "Social Determinants of Health Referrals" yielded 754 total results. Further filtering for articles published in the last 8 years and written in English yielded 628 results. Changing the search criteria to "Social Determinants of Health Resource Referrals" yielded 200 results. Articles suggested to us by colleagues and experts in the field were also included in the final report including articles from the Journal of the American Board of Family Medicine and from the Social Interventions Research and Evaluation Network (SIREN) at the University of San Francisco California (USCF). These articles were screened and reviewed for relevance to the topic and to family physicians and for novelty of data and discussion. A total of 16 papers were included for discussion in this annotated bibliography. They represent a general overview of the literary landscape pertaining to SDOH referral platforms, and ways to address SDOH in the primary care setting. The article annotations include information on the research and ideas put forth in these papers. By selecting a broad range of papers, it is our hope that this bibliography will provide the reader with a thorough understanding of the current landscape of literature pertaining to addressing SDOH in the primary care setting, especially by utilizing resource referral platforms.

Results

Several broad rebricks emerged during analysis related to various areas of addressing Social Determinants of Health (SDOH) in the clinical setting including:

1) General Background on SDOH, Referral platforms, and Screening Strategies
2) Overview of Current Practices and Strategies
3) Lessons From Experience in the Field
4) Best Practice Recommendations

1) General Background on SDOH, Referral Platforms, and Screening Strategies

This rubric includes information on the general background of SDOH and helps to inform thinking on the way SDOH could be intentionally included in the health history and addressed in the primary care setting. This section also includes information on some of the most commonly

used social resource referral platforms and their effectiveness in connecting patients to community resources and providing information for providers.

Boch S, Keedy H, Chavez L, Dolce M, Chisolm D. An integrative review of Social Determinants of health screenings used in primary care settings. *Journal of Health Care for the Poor and Underserved*. 2020;31(2):603-622. doi:10.1353/hpu.2020.0048

This integrative review sought to describe and examine characteristics of social determinants of health screening implemented in different primary care clinics. Points of comparison included timing and location of screening, screen format, screening questions and domains, screening practices, and rates of referral to social services. The authors conclude that there is great need for more understanding of best approaches to social determinants of health screening, and the effectiveness of these approaches in improving access to social determinants of health resources in the community. There does not seem to be a clear consensus on which social determinants of health domains should be screened for or how and when to implement the screening. More research is needed in order to determine best practices for social determinants of health screening and to determine which practices lead to improved resource utilization and health outcomes.

Cartier Y, Gottlieb L, Fichtenberg C. Community Resource Referral Platforms: A guide for health ... Social Interventions Research and Evaluation Network. https://sirenetwork.ucsf.edu/sites/default/files/wysiwyg/Community-Resource-Referral Platforms-Guide.

In this thorough review of community resource referral platforms, Cartier et. al uses information gathered from nine community resource directory and referral vendors and interviews with users from 39 organizations to provide information on, and user experience of, some of the most commonly used community resource referral platforms in the United States. The most common user desired functionalities as well as advice from organizations on implementing a new resource referral platform are detailed. Three key areas for further information gathering are noted as current gaps in the field including information about effective ways to set up referrals and closed systems, information about impacts of these platforms on social service organizations, and data about platform performance and effectiveness.

Curt A, Khidir H, Ciccolo G, Camargo C, Samules-Kalow M. Geographically indexed referral databases to address social needs in the emergency department. *Western Journal of Emergency Medicine*. 2021;22(2). doi:10.5811/westjem.2020.11.49250

In this review article, Curt et. al conducts a systematic review of literature on the use of geographically indexed resource databases in the healthcare setting as well as a simulated standardize search of Aunt Bertha and 211 applied to the Boston metropolitan area. From the systematic review, the authors conclude that 211 centers can successfully connect people to community resources in the healthcare setting and can help the community by encouraging

healthy behaviors, improving understanding of community resources, and decreasing barriers to access social resources. In the database usability simulation, the authors mapped the number of available recourses for each separate social needs category (food, transportation, utilities, and housing) to zip code with the poverty index for that zip code serving as a proxy for relative need. The authors determined that both databases had greater than 99% accuracy in recommending appropriate referrals based on search criteria for each of the four domains. The main limitation, however, was that a significant portion of the resources were restricted to specific demographic populations, for example, veterans. Resources related to housing where the most often demographic-restricted (54% of resources). Conversely resources related to utilities were the least likely to be demographic-restricted (39%). In a time-restricted setting like the emergency room, these demographic restrictions may make it more difficult to utilize these resources for referrals as demographic information is often not completely understood, however the authors remain optimistic that geographically indexed research databases have the potential to allow ED providers to refer patients to appropriate and geographically approximate community resources, especially when research is done to improve the limitations of demographic-restricted services.

Iott BE, Eddy C, Casanova C, Veinot TC. More than a Database: Understanding CommunityResource Referrals within a Socio-Technical Systems Framework. *AMIA Annu Symp Proc*. 2021;2020:583-592. Published 2021 Jan 25.

Utilizing focus groups with social service agency staff, healthcare providers, and community leaders that were conducted before many of the electronic social determinants of health referral tools became available, Iott et. al. sought to understand the Socio-technical aspects of community resource referrals. The study applied sociotechnical systems (STS) theory to describe the key steps involved in resource referral and the roles that social, technical and, external environmental subsystems play in these referral processes. The authors conclude that social, technical, and external environmental subsystems all play important roles in community resource referral practices. The processes involved may benefit from new technologies but relies heavily on people's knowledge and skills, personal relationships, and inter-organizational networks. The authors stress that organizations should approach research referral technologies as a way to complement, but not replace, the social subsystem and interpersonal work of staff, volunteers, patient navigators, healthcare providers, and other specialist in order to improve community resource referrals.

Moore K. Social Determinants of Health. *North Carolina Medical Journal*. 2019;80(5):306-311. doi:10.18043/ncm.80.5.306

In this article, Moore points to studies that suggest SDOH have a much greater impact on individual health than healthcare and genetics alone. Original research by UnitedHealthcare suggests that Medicaid beneficiaries feel removing social barriers to health such as transportation, food insecurity, and income needs was essential to improving their health. Analysis of research conducted by the American College of Physicians reveals that investments in social services and integrated healthcare models have positive effects on health outcomes and healthcare costs. The author reviews the development of a statewide SDOH screening tool and referral platform in North Carolina as well as UnitedHealthcare's Accountable Health Communities Program in Hawai'i. Moore also points to lessons learned from the development of

these programs including the importance of communication between health care and community-based organizations, training and staff support, technological considerations including electronic screening and referral resources, and patient education.

2) Overview of Current Practices

This section includes articles which seek to describe the current landscape of strategies utilized to address SDOH in the clinical setting. Data from multiple stakeholders is presented and analyzed and evidence behind certain strategies is described.

Drinkwater C, Wildman J, Moffatt S. Social Prescribing. *British Medical Journal*. 2019:l1285. doi:10.1136/bmj.l1285

This clinical update published in the British Journal of Medicine utilizes information from academic peer reviewed resources to consolidate information regarding social prescribing practices and to provide insight into the evidence supporting social prescribing and tips to incorporate social prescription programs into healthcare systems. It also details information on the benefit of link workers (aka. community health workers) to connect patients with resources in the community to address social determinants of health. The authors stress that link workers should have a deep understanding of community resources and dynamics, especially in areas of socioeconomic disadvantage.

Nederveld AL, Holtrop J, Duarte KF, Skalecki M, Broaddus-Shea ET. Multistakeholder Perspectives on data sharing to address patient food insecurity. *The Journal of the American Board of Family Medicine*. 2022;35(1):85-95. doi:10.3122/jabfm.2022.01.210093

In this exploratory sequential mixed-methods study, Nederveld et.al. gathered qualitative and quantitative data on the perceptions of multiple stakeholders on data sharing for food insecurity referral in the primary care setting of non-urban locations, specifically in regard to screening, referral, and closing the loop in referral systems. Stakeholder groups included patients, food assistance organizations (FAOs), and healthcare workers. All groups agreed on the importance of working to address food insecurity in a clinical setting and that screening for food insecurity and connecting patients with resources were important. There were, however, differences noted in comfort level with sharing data between medical clinics and FAOs, especially in the setting of closing the referral loop. FAO members were the most reluctant about sharing information citing concerns for client privacy, social stigma, and increased burden of collecting and sharing data through different electronic sources on top of their required data collection for grants or federal or state programs. Patients and FAO staff were generally more comfortable with sharing data regarding screening and referrals and less comfortable with closing the referral loop. Healthcare workers, however, felt that closing in the loop is crucial in this process in order to feed information back into the clinical setting. It is also important to note that care managers recommended that having more formal systems for referral (for example electronic referral systems) would help logistically.

Shadowen H, O'Loughlin K, Cheung K, et al. Exploring the relationship between community program location and community needs. *The Journal of the American Board of Family Medicine*. 2022;35(1):55-72. doi:10.3122/jabfm.2022.01.210310

Using hotspot analysis and binomial regression analysis, Shadowen et.al. compare the locations of community needs and programs to address those needs in Richmond, Virginia. Community needs were identified for nine domains including nutrition, physical activity, smoking, unhealthy alcohol use, mental health, housing, food, transportation, and finances. Results of the analysis indicated that community programs were generally not situated in areas with the greatest needs. No statistically significant relationship was found between the number of programs and levels of need for seven of the nine domains indicating that community programs were not more likely to be located in areas of high need. The two exceptions which noted statistically significant association between community need and program density were for financial assistance programs and physical activity. For financial assistance programs there was a positive association between community need and program density. For the physical activity domain there was a negative association between program density and the level of need for physical activity indicating that programs were more likely to be in areas with less physical activity need. The authors concede that while proximity to programming is a very important indicator of outcomes, it is not the only factor influencing access, and that more research is warranted to assess the impact of electronic referral sources between clinicians and social services on access and outcomes.

3) Lessons from the Field

This section includes studies seeking to implement systems and strategies to address SDOH in the clinical setting. Lessons from these projects are outlined and can be uses to improve and update efforts to implement similar projects in a practice setting.

Buitron de la Vega P, Losi S, Sprague Martinez L, et al. Implementing an EHR-based screening and referral system to address social determinants of health in primary care. *Medical Care*. 2019;57(Suppl 2). doi:10.1097/mlr.0000000000001029

This observational study sought to understand the burden of social determinants of health among patients at Boston Medical Center (BMC) and to evaluate the feasibility of implementing THRIVE, a social screening and referral program, in general internal medicine clinics at BMC. With implementation of this program, internal medicine clinics at BMC screened 70% of all new patients. 75% of screenings were transcribed into their electronic health record by medical assistants. Employment (12%) food insecurity (11%) and problems affording medication (11%) were the most commonly cited social determinants of health among respondents. Patient requested resources for education (11%), housing, employment, and affordable medication (all 8%) more commonly than any other resources. In addition, the study showed that implementing a SDOH screening and referral program was feasible within the constraints of a clinical setting and that the program helped to streamline screening and referrals to address SDOH.

Hager K, De Kesel Lofthus A, Balan B, Cutts D. Electronic medical record–based referrals to community nutritional assistance for food-insecure patients. *The Annals of Family Medicine*. 2020;18(3):278-278. doi:10.1370/afm.2530

This article from the Annals of Family Medicine details a new EMR-based referral system at Hennepin County Medical Center in Minneapolis, MN, in partnership with Second Harvest Heartland. HCMC clinicians use the validated hunger vital sign to identify patients with food insecurity. An order was then auto faxed to the food bank, where staff call patients within 24 to 48 hours. Food bank staff provided over the phone application assistance and information about community resources to address food insecurity. A standardized food insecurity screening protocol was added to two outpatient clinics, (senior care and pediatrics), and increased referrals by 1,450% and 270% respectively over a three month period. The authors conclude that the success of these pilot screening programs demonstrates that standardized screening is extremely important and can increase referrals to community partners.

Sanderson D, Braganza S, Philips K, et al. "increasing warm handoffs: Optimizing community based referrals in primary care using QI methodology." *Journal of Primary Care & Community Health*. 2021;12:215013272110238. doi:10.1177/21501327211023883

In this study, Sanderson et. al. sought to determine if QI methodology could be used to increase warm handoffs in order to improve social determinants of health referrals and outcomes at a federally qualified health center located in the south Bronx in congressional district 15, the poorest in the nation. Plan, Do, Study, Act cycles were conducted and the following interventions were undertaken: dedicating community health worker space near providers, creating electronic CHW schedules and warm handoff blocks, improving communication with providers over email and huddle reminders, and posting signs in exam rooms providing information. These interventions contributed to statistically significant improvements in monthly median social needs screenings (380 to 488) monthly median community health worker referrals (30 to 40) and monthly median community health worker warm hand off rate (11% to 24%). The intervention also improved other quality measures including referral rate (7.1 to 8.4) and warm handoffs per referral (8.6% to 22%). The authors conclude that data are encouraging as they suggest that a QI approach can be successful in improving social determinants of health screening and warm handoffs. Possible ideas for continued improvement include moving community health workers further upstream in the workflow and further research to determine if being referred to the community health worker by warm handoff improves referral utilization.

Tung EL, Abramsohn EM, Boyd K, et al. Impact of a low-intensity resource referral intervention on patients' knowledge, beliefs, and use of community resources: Results from the COMMUNITYRX trial. *Journal of General Internal Medicine*. 2019;35(3):815-823. doi:10.1007/s11606-019-05530-5

This study strove to evaluate the impact of CommunityRX, an automated low intensity resource referral intervention, on patient's knowledge, beliefs, and use of community resources. Participants were assigned to either receive community RX intervention or usual care and surveys were administered to determine knowledge, beliefs, and use of community resources. Intervention recipients had improved knowledge and beliefs about common resources designed to address social determinants of health, (especially smoking cessation and weight loss resources) compared to patients in the control group. Improvements in knowledge and positive belief about community resources were also found to improve the likelihood that patients would utilize these resources.

4) Best Practice Recommendations

This section provides an overview of best practices and recommendations regarding addressing SDOH in the clinical setting.

Andermann A. Taking action on the social determinants of Health in Clinical Practice: A Framework for Health Professionals. *Canadian Medical Association Journal*. 2016;188(17-18). doi:10.1503/cmaj.160177

In this article, Amderman et.al. argue that in order to improve population health, health equity work must become a key area of improvement in the health sector and programs to identify and address social determinants of health should be incorporated into health programs and services at clinical, community, and national levels. Research identified from a number of database searches in used to lay out a framework for concrete actions that clinicians can take to help address social determinants of health in their clinical practice as well as in their community. Stressed are the importance of screening and communicating with patients in a compassionate way, referral to community resources, systems level changes, and advocacy to influence the political drivers of the social determinants of health.

Best practices: Using social determinants of health resource and referral data to increase equitable access and connection rates to essential resources. Health Leads. https://healthleadsusa.org/resources/health-resource-and-referral-data-to-increase-equitable-access-and-connections/. Published July 6, 2021. Accessed January 30, 2022.

This resource from the Health Leads Network provides best practices for SDOH resource referral data interpretation in order to improve equitable access to community resources designed to address SDOH. It provides ideas for successful resource database management, successful community-driven resource curation, and three key practices for health systems to create stronger pathways for health equity:

1) keeping community resource data up to date
2) enabling stronger coordination between resource providers and clinic-based SDOH referral through bidirectional channels of communication
3) Integrating the voice of the community into data-sharing programs by sharing data ownership and access with the community.

This resource also stresses the importance of context when interpreting data and the use of both population and individual level demographic data. Also stressed is strong community relationships and bidirectional communication with closed loop referral systems to improve accessibility and efficiency in resource connection.

Chagin K, Choate F, Cook K, Fuehrer S, Misak JE, Sehgal AR. A framework for evaluating social determinants of health screening and referrals for Assistance. *Journal of Primary Care & Community Health*. 2021;12:215013272110522. doi:10.1177/21501327211052204

In this observational study, the authors sought to evaluate the SDOH referral system at The Metro Health System in Cleveland, Ohio, and to determine the 6 crucial sequential steps in the screening and referral process. The outcomes of screening and referral were also tracked and the most common reason for unresolved social needs were identified. Food insecurity was used as the SDOH of interest because of its prevalence in this Cleveland community. Of the 9537 patients in the study, 60% were screened for SDOH. 70% of those patients screen positive for food insecurity. 86% of those patient consented to referral and 42% had referrals actually placed. 98% of the referrals were accepted by community resources, but only 27% of referrals were resolved. The most common reason cited for failure to resolve referrals were inability to contact patients (151 out of 366 accepted referrals) and no reason stated (71). The authors conclude that this 6 step framework for evaluating the social screening and referral process could be used to identify breakdowns in the system that lead to unresolved referrals and suggest areas for improvement in SDOH screening and referral in the clinical setting.

Poleshuck E, Possemato K, Johnson EM, Cohen AJ, Fogarty CT, Funderburk JS. Leveraging Integrated Primary Care to address patients' and families' unmet social needs: Aligning practice with National Academy of Sciences, Engineering and Medicine Recommendations. *The Journal of the American Board of Family Medicine*. 2022;35(1):185-189. doi:10.3122/jabfm.2022.01.210287

A recent National Academy of Sciences Engineering and Medicine consensus report identified five systems level activities to help identify and address social determinants of health in a clinical setting. These criteria are awareness (ask patients), adjustment (flexible intervention delivery), assistance (intervention to address the social need), alignment (link with community resources), and advocacy (policy change). This article outlines the ways in which certain primary care techniques such as routine patient screening, functional workflows, interprofessional team communication, and patient centered practices can meet the NASEM report’s recommendations and can provide tools to address social needs in a clinical setting. The article stresses the importance of integrated healthcare strategies including warm handoffs and continuity in the patient physician relationship as these are associated with improvement in tobacco cessation interventions and cancer screenings. Also stressed is the importance of advocacy and Systems

level changes to incentivize Healthcare institutes to address social needs including payments for screening and diagnosis of social needs, warm handoffs, and social needs interventions, and direct reimbursement for community health workers.

Conclusion

It is well documented that SDOH are crucial drivers of health outcomes and inequities in the United States. Differences in socioeconomic status, housing, education, and other SDOH have been shown to have drastic effects on health outcomes. Systems in the United States designed by racism, implicit biases, and discrimination have ensured that members of the BIPOC community are disproportionately represented in populations for which SDOH negatively impact health outcomes. SDOH, therefor, are a major driving force in the unacceptable health disparities that haunt health outcomes in the United States. The modern family physician, therefore, must possess the training, skills and access to resources to address these upstream determinants of health. One of the most promising tools that seeks to address SDOH in the primary care setting is the resource referral platform. When combined with SDOH screening in the clinic, these referral platforms can provide a powerful tool for thinking about and working to address SDOH in the family medicine setting. It is our hope that the preceding annotated bibliography was able to provide the reader with an overview of the current literary landscape pertaining to these SDOH screening platforms, their use in the primary care setting, and to orient the reader to the potential advantages and challenges of setting up and using these systems in their own practices.

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