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PERSPECTIVE

Accelerating integration of social needs into mainstream healthcare to achieve health equity in the COVID-19 era

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Abstract
It is known that social inequities result in health disparities in outcomes, highlighted in the coronavirus disease 2019 (COVID-19) pandemic. This commentary discusses the actionable initiatives that have been implemented to address social inequities in healthcare in the United States. The publicly available social needs screening tools and International Classification of Disease Systems-10 Z codes for social determinants of health are introduced. In this context, policies, health system strategies and the larger role of implementation science in recognizing and alleviating the social needs are discussed.

Key words: Alternate payment model; health equity; population health; social determinants of health; social needs

1. Introduction

Black and Hispanic communities have had disproportionately high fatality rates in the coronavirus disease 2019 (COVID-19) pandemic (Johns Hopkins University, 2020; New York State Department of Health, 2020; Yancy, 2020). This has led to the recognition of social determinants of health (SDoH), as upstream determinants of clinical outcomes, and an accelerated push in healthcare systems to focus on 'integration of social needs with healthcare' (Gourevitch *et al.*, 2019). The 2019 National Academy of Medicine report provided guidance for such integration prior to the pandemic (The National Academies of Sciences Engi (Washington District of Columbia) 2019). The report advocated '*awareness*' in recognizing the social needs that are most wanting, '*adjustment*' of initiatives around these needs, for example: provision of telemonitoring services for patients with difficulties in transportation that may alleviate out-patient appointments and be more acceptable to the patient, '*assistance*' directed toward relevant social needs such as transportation vouchers for patients with transportation difficulties, and '*alignment and advocacy*' of the health and social work force with resource allocation toward the social needs.

2. Identification of social needs

An essential first step in the recognition of social needs is the use of an appropriate screening tool. The Center for Medicare and Medicaid Services (CMS) introduced the Accountable Health Communities (AHC) Health-Related Social Needs Screening (HRSN) Tool (2017). This tool is a questionnaire that scores and recognizes deficiencies in five core domains of housing instability, food insecurity, transportation problems, utility help needs and interpersonal safety and eight supplemental domains of financial strain, employment, family and community support, education, physical activity, substance abuse, mental health and disabilities. The goal is to use the HRSN tool in the AHC models and redirect resources in the CMS-established network of

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community dwellings and social services organizations to improve outcomes in those identified as high risk by the tool (National Association of Community Health Centres, 2019b) Other commonly available tools are the Protocol for Responding to and Assessing Patients' Assets, Risks and Experiences (PRAPARE) made by the National Association of Community Health Centres (2019d) and the Health Leads Screening toolkit (2018).

An additional challenge in recognition of SDoH was the inability to document the needs in the patient's electronic medical records. Ten SDoH primary Z codes (Z 55.0 – Z 65.0) were introduced by CMS in collaboration with United Health Care into the International Classification of Disease Systems-10 in 2019 for documentation in electronic health records and linkage to payment models (National Association of Community Health Centres, 2019a). Examples of some primary Z codes are: Z 55.0 – problems related to literacy and education, Z 59.0 – problems related to housing and economic circumstances, Z 64.0 – problems related to certain psychosocial circumstances. The introduction of these Z codes was a step toward creating billable items for services rendered for these social needs.

3. Health system heuristics and outcomes of interventions for social determinants of health

It is imperative that health systems make achieving health equity and addressing SDoH a strategic priority to achieve meaningful change in the drive for health equity. In addition to leaders addressing structural levels of racism and inequities in a hierarchy by diversifying the workforce, malleable culturally competent interventions will be required to adapt to local needs of communities. The use of community health workers (CHWs) is one such as an effective community-based, patient-centered strategy to address pressing SDoH. As members of the communities they serve, CHWs draw upon expertise gained through their lived experiences to aid in reducing, if not eliminating, barriers to care (Israel, 1985; Rosenthal *et al.*, 2010; Freeman, 2016). They may connect patients and families to resources for housing, food, and mental health services. CHWs may help patients navigate the complex health system, engage with members of care teams to facilitate care coordination, conduct outreach programs, and offer informal counseling for social support. There is also growing support for a 'medical home model' that offer in-person resource navigation through SDoH screening and centralized access to CHW resources, care coordination, home visiting, and interagency collaboration and communication to address the social needs of patients and their families (Garg and Dworkin, 2016). Such medical homes have been shown to increase preventive care visits, lower outpatient sick visits, and decrease emergency department sick visits in patients with chronic needs (Long *et al.*, 2012). These social and structural support mechanisms have been shown to improve treatment compliance in chronic diseases such as diabetes and anti-retroviral therapy in pregnant HIV women (Omonaiye *et al.*, 2018). Health system investment and partnership with community-based grassroots organizations are necessary to be accepted by resource-limited communities and enhance collaboration to achieve the goals of addressing SDoH. Contribution to local communities by establishing food banks, building green spaces and sponsorship of education may improve access to certain social needs, however these have not been shown to improve the overall health of the population yet. There is recent evidence to suggest that financial support such as the 'Child Tax Credit' provided in the United States during the COVID-19 pandemic as a part of the American Rescue Plan reported a decrease in food insecurity from 13.7% to 9.5% (Zippel, 2021). Perhaps, consideration to providing regular financial support will allow families to use the economic resource to cater to their individual needs and may be considered by local governments.

As the recognition of SDoH is getting a strong foothold, interventions have been introduced to alleviate the social needs acutely during the pandemic such as meeting remote education needs through the provision of computers/portable devices to students by local schools, giving housing assistance to families displaced by financial hardships, providing mental health services, creating

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referral hotlines for domestic victims of abuse as a result of prolonged quarantines. Prior to COVID19, operationalizing such 'population health' initiatives was largely successful in academic medical centers with large financial cushions or systems with high community-level participation and support from some state governments (Brewster *et al.*, 2018; Gourevitch *et al.*, 2019) Referral mechanisms have been expanded in the US for national feeding programs such as Supplemental Nutrition Assistance Program (McGuire, 2013; US Food and Nutrition Services, 2020c), Child and Adult Care Food Program (US Food and Nutrition Services, 2017), National School and Breakfast Programs (US Food and Nutrition Services, 2020b) as well as locally within communities through food banks. (2020).

While there is evolving evidence on interventions for SDoH as health systems focus on strategies to achieve health equity, most data are still limited for select diseases. Overall patient outcomes for certain chronic conditions have shown promising results. Table 1 summarizes some salient studies that have demonstrated effectiveness of SDoH interventions for the various domains. It is likely that patients may have numerous social needs that affect their outcomes. However, it remains largely undetermined if and how multiple SDoH interventions may alter patient outcomes of disease at the present time.

4. Payment reforms

Following the COVID-19 pandemic, payment models have been introduced to accelerate the implementation of SDoH screening and interventions. Recent CMS payment reforms allowed telehealth visits to be reimbursed at regular clinic visit rates. That has resulted in wider acceptance of telehealth practices (Center for Medicare and Medicaid Services, 2020). In 2019, CMS Innovation Centre introduced one of the first alternate payment models to evaluate SDoH and to address health-related social needs in the form of the AHC Model (National Association of Community Health Centres, 2019b). This model sought to promote 'clinical-community collaboration' with screening for social needs and referral to community services that directly addressed the health-related social needs at clinical delivery sites in vulnerable communities. CMS has also redesigned the payment structure to provide Medicare Advantage plans the flexibility to cover SDoH benefits such as transportation to appointments or home-delivered meals for immunocompromised people (National Association of Community Health Centres, 2019c). Some state Health and Human Services agencies as in North Carolina have initiated pilot projects for social needs interventions payments based on value-based care of these services (Cohen *et al.*, 2020).

5. Acceptable and appropriate interventions

While SDoH have been recognized as contributing to health disparities and numerous interventions are being proposed, it is important to remember that these interventions are not a one size fits all and will need tailoring. Adherence, or fidelity, to a program will depend on many factors including the patient's acceptability and appropriateness of the intervention. Acceptability is defined as a patient's agreement or satisfaction with an intervention's features (i.e. content, how it is delivered, length, etc) while appropriateness means the perceived fit of the intervention to address patient's needs (Proctor *et al.*, 2011). For example, through a SDoH lens, a patient will not attend a multi-visit outpatient program even if transportation is arranged for the program, if that means missing shifts at their employment site. Thus, any program introduced to such a patient may not be acceptable until it satisfies the immediate need of the patient which is to keep their job. It is under these circumstances that the 'implementation science' frameworks may be introduced into any SDoH program to assess the effectiveness of strategies in achieving their desired outcomes. The programs introduced to relieve SDoH specifically suit an implementation evaluation because they extend not only into the patient and provider domains of acceptability or adoption but also assess program-specific domains such as feasibility and fidelity of an

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Table 1. Salient proven interventions for social determinants of health that affect outcomes

SDoH Domain	Existing Evidence	Intervention	Outcome
Food Insecurity	'Special Supplemental Nutrition Program for Women, Infants and Children' (WIC)		Reduced rates of low birth weight in women with lower education levels
	(Wang *et al*., 2021)	County-level longitudinal analysis	1 percentage point increase in food insecurity independently associated with an increase in age-adjusted cardiovascular mortality rates for non-elderly adults
Housing	'Moving to Opportunity for Fair Housing Project' (Ludwig *et al*., 2012)	Federally funded housing voucher program for relocation	Ten-year improvements in adult physical (obesity, diabetes) and mental health and subjective well-being
	'Yonkers Scattered Site Public Housing' (Fauth *et al*., 2004)	Low-income residents' relocation to middle-income neighborhoods	Better self-reported health and decreased substance use, increased rates of employment, and decreased exposure to neighborhood violence
Income Supplementation	'Supplemental Security Income' (SSI) (Arno *et al*., 2011)	Income supplementation for elderly and people with disabilities	Decreased mortality in elderly
	'Earned Income Tax Credit' (Arno *et al*., 2011)	Cash for low-income families	Decreased low birth weight, maternal smoking, improved birth outcomes in Blacks
	'Five Plus Nuts and Beans' (Miller *et al*., 2016)	Conditional cash transfers for groceries with nutritional counseling in Blacks	No effect on hypertension control, but healthier dietary habits with increased consumption of fruits and vegetables
Employment Opportunities	(Kneipp *et al*., 2011)	Low socio-economic status women	Improved mental health visits, depression and functional status
	(Luciano *et al*., 2014)	Severe mental illness	Reductions in outpatient psychiatric treatment, improved self esteem
Education	'The Carolina Abecedarian Project' (Campbell *et al*., 2014)	Children ages birth to 5 years were randomly assigned to an early childhood education intervention group	Fewer symptoms of depression, lower marijuana use, a more active lifestyle, lower body mass index and fewer risk factors for cardiovascular and metabolic disease
	'Head Start Program' (Lumeng *et al*., 2015)	Early childhood home visitation program targeting low-income first-time mothers	Decreased obesity rates in participants compared to non-participating children
Built Environment	'Project U turn' with 'Safe Routes to School Program' (TenBrink *et al*., 2009)	Increased active transport to schools	Encouraged physical activity with an increased proportion of children walking to school
Access to Care	(Wang *et al*., 2019)	Free or discounted medications to patients being discharged following myocardial infarction	Improved adherence and out-of-pocket costs

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intervention and health system heuristics such as implementation cost, penetration and sustainability of such programs (Proctor *et al.*, 2011).

6. Conclusions

Increasing awareness of the role of SDoH is a step in the right direction for vulnerable disadvantaged communities. Acute-term goals for controlling resurgence and vaccination of COVID-19 in disadvantaged communities may be achieved with a long-term goal of improved overall health and outcomes. The pandemic has certainly accelerated the integration of social needs into main stream health care. Long-term sustainability will depend on continued local, regional and national support and a multi-pronged approach toward policies that address social needs with the ultimate aim of optimizing health and alleviating the burden of chronic diseases.

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Conflict of interest. None.

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