Development and Evaluation of an Electronic Social Needs Assessment and Resource Connection Tool in Facilitating Utilization of Community Services That Address Upstream Health

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Abstract

Background: Social determinants of health (SDOH) put some groups who access care at student-run free clinics (SRFCs) at higher risk for adverse medical outcomes. Free or low-cost community services supplement clinic-based interventions, but access is limited by knowledge, transportation, language, and/or trust. Social needs assessments may be electronically paired with resource connection tools to connect patients to local, validated resources. The objective of this pilot study was to evaluate the SDOH screen and resource connection tool developed at a SRFC.
Methods: The tool was piloted with a convenience sample of 40 patients with scheduled outpatient appointments at a SRFC in Miami, Florida. Participants were given information about a variety of services and screened for high-risk situations such as human trafficking. Follow-up survey via telephone at 2-4 weeks identified survey acceptability, successful connections, and barriers to access.
Results: Forty participants completed the assessment. All participants were counseled regarding exercise and nutrition and requested information about more than one resource. Sixty percent (n=24) were successfully contacted for follow-up. Of these, 29% (n=7) were able to connect with one or more recommended resources. Reasons given for failure to access resources included lack of time or transportation, health issues, and lack of response from contacted organizations.
Conclusions: Social needs assessments may be implemented in SRFCs to identify high-risk needs, facilitate linkage to local organizations that meet these needs, gather data to guide future programming, and provide education and counseling. Stronger connections with local organizations and closed loop referrals may be needed to facilitate connection to community resources.

Introduction

The environmental factors that influence morbidity and mortality are known as "social determinants of health" (SDOH). Forces of socioeconomic inequality—such as racism, access to food, ability to exercise, transportation, education, cost of after school care, stability of housing, and English literacy—account for over 40% of the variance in health outcomes, as compared to medical care, which accounts for 20%.[1,2] Despite the impact of SDOH, many physicians' offices fail to screen patients. In a cross-sectional study of United States hospitals and outpatient practices, less than one fifth of outpatient physicians reported screening for SDOH.[3]

Outside the clinic space, many patients do not know how to identify and access existing community services that might address their SDOH. Survey via online questionnaire of 1,006 adults across the United States demonstrates that over half reported that they were not sure if their communities have transportation vouchers, housing counseling centers, housing vouchers, or subsidized group exercise classes.[4] Further, over a third reported that they were not confident they could identify community resources to meet their needs without assistance.[4] Given the significant impact on health outcomes, several large healthcare systems are taking steps to integrate SDOH screenings into the electronic medical record and to connect patients with local services.[5-8]

Existing literature seeks to characterize SDOH and resource connection programs. In a systematic review of 37 socioeconomic needs programs, Gottlieb and colleagues included interventions that provided patients with community resources.[9] These studies were variably successful. For example, screening for food insecurity among parents in a pediatric clinic found that many were eligible to receive benefits. Follow up revealed only 8% of those eligible had applied.[10] Manian and colleagues analyzed 38,404 patients who screened positive for unmet resource needs over 5 years and found that 62% of participants assisted by longitudinal navigators had what they called "a successful connection" to community resources, defined as a situation one in which participants were able to access a resource and a need was no longer present.[11]

As of 2014, 75% of medical schools were associated with a student-run free clinic (SRFC).[12] Some SRFC have implemented SDOH screens and resource connection programs, but few have reported on the results. In one study, Smith and colleagues screened patients at a SRFC in San Diego for food insecurity, then provided referrals to local food pantries based on home address.[13] All patients received some form of food assistance.[13] At an SRFC in California, Goel and colleagues assessed the acceptability of an iPhone application (iRefer) to connect patients to outside healthcare providers, as well as social services based on distance from the clinic and user ranking.[14] They have not yet reported on the implementation of the application or rate of successful connection.

The existing literature provides little guidance on how to identify reliable community resources and fails to extrapolate protocols for addressing emergency needs (such as active human trafficking or suicidal ideation). There is also a paucity of data on the facilitators and barriers to successful connection within the SRFC paradigm.

Here, we outline the development of our screen and referral system by defining a setting-specific SDOH screen; addressing needs with motivational interviewing, resource connection, and protocol implementation; assessing acceptability and efficacy of the screening process; and identifying barriers to resource utilization via a follow-up survey. Our goal is to provide a framework so that other SRFC may build resource connection tools to produce successful connections.

Methods

The development of the SDOH tool included: creating an SDOH screen, compiling and validating community resources, and piloting in a SRFC. Subsequent evaluation identified areas for improvement and program development.

Practice Setting

The San Juan Bosco Clinic (SJBC) is a free clinic in Allapattah, Miami that provides care to patients at or below 200% of the poverty line. In 2015, SJBC provided 4,796 clinical encounters. The average per capita income for 2015 was $23,174, with 19.9% of clinic visitors living below the poverty line. The majority of patients are Hispanic, Spanish speaking, lack access to insurance, and live broadly across Miami-Dade County.

The clinic maintains a relationship with The University of Miami Miller School of Medicine Department of Community Service, wherein volunteer medical students organize and direct a specialty care clinic on Tuesday evenings with providers of various specialties alternating in a rotating fashion, including psychiatry, rheumatology, cardiology, among others.

Phase I: Development of the SDOH Screen

A published community needs assessment of Miami-Dade county and the Health Begins Upstream Risks Screening Tool were used to identify areas of unmet social need, including: employ-

ment, childcare, English classes, housing, transportation, human immunodeficiency virus (HIV) testing, mental health, nutrition, access to food, physical activity, dental health, legal services, advanced directives, Medicare access, voting access, domestic violence and sexual assault treatment, and human trafficking prevention.[15,16]

The SDOH screen comprised of 15 sections, including: questions adapted from the community needs assessments, a pre- and post-questionnaire, program development survey, demographics section (collected but not reported),[17] and standardized screens, such as the HITS (hurt, insulted, threatened with harm, screamed at) screen for domestic violence,[18] a human trafficking screen,[19] and the Patient Health Questionnaire (PHQ-9) for depression.[20] Questions (Online Appendix A), procedures, and protocols (Online Appendix B) were developed with and approved by the clinic director and by the clinic legal counsel.

Study data were collected and managed using Research Electronic Data Capture (REDCap), a research tool hosted at University of Miami Miller School of Medicine.[21] REDCap is a secure, web-based application designed to support data capture for research studies. REDCap was chosen due to its user-friendly interface and Health Insurance Portability & Accountability Act compliant information storage. Branching logic was utilized to provide drop-down educational counseling and to personalize applied questions. In-text images (such as National Institute of Health nutrition guides)[22] and downloadable attachments were integrated to supplement counseling for social needs, such as nutrition and physical activity.

The SDOH screen was translated into Spanish by two native Spanish-speakers. Translations were then reviewed by the clinic director and clinic coordinator, who are also native Spanish speakers.

Phase II: Compilation of Resource Database

To provide local, personalized resources to patients, Miami-Dade County was divided into six zip code catchment zones based on 5-10 zip codes.

For each catchment zone, five local resources were identified per social need. Resources were compiled from multiple sources, including Florida 2-1-1, a free online referral service. All information was stored using Google Sheets (Google, 2021, Menlo Park, CA) and was transcribed both in English and Spanish. In total, over 200 resources were identified and validated. Resources were organized by catchment zone and by social need type. Over 100 hours were spent contacting and confirming information regarding hours of operation, cost, contact, and requirements (including legal documentation status) for organizations.

These resources were subsequently linked to the SDOH screen through branching logic, creating a "resource connection tool". Based off the participants' identified needs and their zip code, a link to catchment-zone specific resources was programmed to populate at the completion of the survey.

Phase III: SDOH Screen and Resource Connection Tool Pilot

Social Needs Assessment Providers (SNAPs) fluent in Spanish were recruited from medical and public health graduate programs at the University of Miami. A comprehensive two-hour training included protocols for high-risk situations, Spanish fluency assessment, cultural competency, and motivational interviewing, a technique for inducing behavioral change.

SNAPs administered SDOH surveys in a private room for 30-45 minutes, preceding medical visits to the student-run specialty clinic on Tuesday afternoons. Participants were recruited via a convenience sample, approached in the waiting room and asked if they would like to take part in a SDOH screen. SNAPs reviewed a consent with the patient, and informed them that the surveys would be confidential, unless they posed a risk of harm to themselves or others. Additionally, participants were asked if they consented to having a copy of their survey in their clinical chart and if they consented to having a follow up phone call with a SNAP. Signed consent was obtained from all participants, given that answering 'yes' to some questions (e.g. suicidality) would lead to a protocol which included informing the clinic director and storing information within their chart. The University of Miami Institutional Review Board approved this study.

All surveys were administered in the patients'

preferred language, all were conducted in Spanish. Due to the number of high-risk topics as well as the numerous opportunities for in-survey counseling, surveys were verbally administered, and the SNAPs inputted patient responses into the REDCap interface.

Given transportation and time limitations, participants were asked their zip code in the demographic section at the beginning of the survey to tailor the assessment to their catchment zone. Needs identified in the survey were addressed in various ways (Table 1). For most needs, a link to an online spreadsheet with five separate resources within the participant's catchment zone was coded to appear at the end of the survey. SNAPs would then print the information about the organizations, as described in Phase II, and review which resources might be most useful for the participants. For other needs, such as Medicare registration or advance directives, links to relevant paperwork were embedded within the survey and printed on request.

For nutrition and physical activity, in-survey counseling was conducted. Linked within the survey interface were educational infographics from the National Institute of Diabetes and Digestive and Kidney Diseases and United States Department of Agriculture, including MyPlate images and guidelines on exercise recommendations from the United States Department of Health and Human Services. SNAPs used motivational interviewing techniques and these in-survey images to counsel patients on lifestyle modifications. When high-risk needs, such as suicidality, domestic violence, or human trafficking, were identified, SNAPs would inform clinic leadership, call relevant hotlines with participant consent, make appropriate referrals, or involve emergency personnel as necessary (Online Appendix B). Protocols would populate in-survey if participants met criteria for a high risk need through branching logic.

Participants were also asked to identify the primary community concern for themselves and their families. Selected responses are reported descriptively. The number of participants requesting information about resources was recorded and reported, as was the percentage of patients who received in-survey counseling. We report the number and outcomes of our high-risk

Table 1. Procedures to Address Identified Social Needs

Procedure	Needs to be Addressed
Participants given printout with information about local resources	Employment, English classes, childcare, free/supplementary food, dental health, legal services, human immunodeficiency virus (HIV) testing, housing, nutrition, physical activity
Participants given information and appropriate forms	Medicare registration, voter registration, advance directives (living will, healthcare surrogates, anatomical donation)
In-survey education and motivational interviewing	Nutrition, physical activity
Action protocol is initiated in response to high-risk need	Homelessness, intimate partner violence, sexual violence, human trafficking, depression, suicidality
Referral to psychiatry night at San Juan Bosco Clinic (SJBC)	Depression

screens, as well as the capability of SNAPs to follow the designated protocols.

To complete the follow-up survey, SNAPs contacted participants two to four weeks following the initial SDOH screen. The post-survey protocol was as follows: SNAPs attempted to contact patients via phone at least two to three times. The acceptability of the SDOH screen was assessed by asking participants at follow-up to rate their overall experience with the resource assessment using a 3-point Likert scale. Participants were also asked to give open-ended suggestions for improvement. Responses are reported.

Additionally, access to provided resources and barriers to access were assessed. Participants were asked whether resources had been accessed after the SDOH screen (Yes/No) and which resources had been used (open-ended). Participants were also asked an open-ended question regarding the barriers to seeking and accessing community resources. The majority of responses were one to three sentences long. Responses were transcribed in English in the first person and third person. Responses are reported.

In some cases, participants requested an additional follow-up call to allow them more time to

access provided resources. These patients were asked to take an initial follow-up survey on that encounter, were offered assistance in accessing referred resources, and were called again within two weeks to repeat the follow-up survey.

Data Storage and Analysis

All responses were de-identified and recorded in REDCap. Responses to selected questions are reported descriptively as frequencies and percentages. Data were plotted in figures using Microsoft Excel 2016 for Mac (Version 15.22, Microsoft Inc., Redmond, WA). Open-ended responses were transcribed in English. In some cases, these were reported as direct quotes.

Results

Participants

Between October 2017 and May 2018, 40 participants were enrolled. Due to the low number of participants and to protect anonymity, no demographics are reported. Briefly, the majority of participants were female and had a country of origin other than the United States.

Of participants, 38% (n=15) reported utilizing community resources before the SDOH screen and resource connection process, including food stamps, bus passes, free medical services at Jackson Memorial Hospital, and free dental services.

SDOH Screen and Requests for Resources

Results of the SDOH screen are reported in Table 2. Throughout the screen, participants could opt to receive information about resources (questions marked by asterisks). All participants (100%) requested and received information about one or more outside resource.

Participants were asked questions about their basic needs including employment, finances, housing, and transportation to and from the clinic. About half of participants (n=21) reported difficulty making ends meet at the end of the month. Of the 22 participants who reported unemployment, 14 (64%) requested and received resources to assist in looking for employment. Of all respondents, a majority (n=30) were given information about English classes. Though many participants (n=16) reported difficulty getting to both daytime and specialty appointments, no transp-

ortation resources were available at the time of the survey.

Both food insecurity and interest in nutrition education were significant in the screened sample. A quarter (n=10) of participants reported that there is 'sometimes' or 'often' not enough food to eat at home. A majority (n=34) of all participants requested and received information regarding resources to better access low-cost food. In terms of nutrition, a majority (n=26) of participants received information regarding free nutritional classes and half (n=20) were interested and received information about a free app to manage their nutrition goals. In terms of exercise, 60% (n=24) of participants received information about free fitness classes in their area. SNAPs utilized motivational interviewing with all participants (n=40) to encourage meeting nutrition and exercise goals.

Sexual health screening was limited to questions about HIV. A majority (60%, n=24) of participants had never been tested for HIV. Many participants (43%, n=17) opted to receive information about how to get tested, either at the department of health or at an outside organization. When asked about dental health, a majority (65%, n=26) of participants had not seen a dentist in the previous year. An overwhelming majority (90%, n=36) requested and were given information about free or low-cost local dental care.

About half (48%, n=19) of participants received information about free or low-cost legal services. All participants (n=40) were counseled briefly about advanced directives. Of all participants, 48% (n=19) requested and received a printed copy of the advanced directives application. SNAPs helped 3 participants register to vote.

Identification of High-Risk Needs and Implementation of Protocols

A total of three participants responded that they had a history of emotional or physical abuse; after standardized HITS questioning, zero were found to be in an active intimate partner violence situation. One participant answered a screening question positive for human trafficking; after further questioning they were not found to be in an active trafficking situation. No participants reported sleeping outside or in a place not meant for sleeping. Seven (18%) participants met criteria

Table 2. Results from SDOH screening questions

| Social Needs Assessment and Resource Connection	n=40	%
Transportation		
What is Your Primary Mode of Transportation to the Clinic (choose as many as apply)		
Drive	15	37.5
Get a Ride	1	2.5
Bus	22	55.0
Walk	4	10.0
Other	3	7.5
Do you find it difficult to get to and from your day-time appointments with your medical provider?		
Yes	16	40.0
No	24	60.0
Do you find it difficult to get to and from specialty care appointments?		
Yes	19	47.5
No	21	52.5
Employment and Finances		
Do you ever have problems making ends meet at the end of the month?		
Yes	21	52.5
No	19	47.5
If yes to the above, how hard is it for you to pay for the very basics like food, housing, medical care, and heating?		
Not hard at all	1	4.8
Somewhat hard	11	52.4
Very hard	9	42.9
Are you currently employed?		
Yes	18	45.0
No	22	55.0
If no to the above, would you like resources to assist you in looking for employment?*		
Yes	14	63.6
No	8	36.4
Are you interested in English classes?*		
Yes	30	75.0
No	10	25.0
Are you interested in daytime child-care services?*		
Yes	4	10.0
No	36	90.0
Housing		
In the last month, have you had concerns about the condition or quality of your housing?		
Yes	6	15.0
No	34	85.0
In the last month, have you slept outside, in a shelter, in a place not meant for sleeping, or in a place you felt unsafe?		
Yes	0	0.0
No	40	100.0
Sexual Health		
Have you been tested for HIV/AIDS in your lifetime?		
Yes	24	60.0
No	16	40.0
Would you like resources for HIV prevention or testing?*		
Yes	17	42.5
No	19	47.5
No response recorded	4	10.0
Nutrition		
Would you be interested in low-cost nutritional classes or information for you or your family?*		
Yes	26	65.0
No	14	35.0
Are you interested and able to use a free app or website to manage the nutrition of you or your family?*		
Yes	20	50.0
No	20	50.0

Is low-cost healthy food easy to find within 5 miles of where you live?		
Yes	28	70.0
No	12	30.0
Which of the following describes the amount of food your household has to eat?		
Enough food to eat	30	75.0
Sometimes enough food to eat	8	20.0
Often not enough food to eat	2	5.0
Are you or your family receiving food stamps?		
Yes	15	37.5
No	25	62.5
Would you be interested in resources to help you better access food for you or your family?*		
Yes	34	85.0
No	6	15.0

Exercise

*Would you be interested in finding a gym or recreation center that is affordable and in your area?		
Yes	24	60.0
No	16	40.0

Dental Care

Have you been to a dentist within the last year?		
Yes	14	35.0
No	26	65.0
*Would you be interested in resources that provide free or lower cost dental care?		
Yes	36	90.0
No	4	10.0

Legal Needs

*Do you have any legal needs that might require the help of a lawyer? (For example: work, immigration, disability, housing)		
Yes	19	47.5
No	21	52.5

Advanced Directive

An advance directive is a written statement of a person's wishes regarding medical treatment. Would you like information on any of the following?		
Healthcare surrogate		
Yes	12	30.0
No	28	70.0
Living Will		
Yes	5	12.5
No	35	87.5
Organ Donation		
Yes	5	12.5
No	35	87.5
*Received printed copy of AD form		
Yes	19	47.5
No	21	52.5

Voting

Are you registered to vote?		
Yes	7	17.5
No	21	52.5
Not applicable	11	27.5
No answer recorded	1	2.5
If no to the above, would you like help registering to vote?	n=21	
Yes	3	14.3
No	18	85.7

When answered in the affirmative, questions marked with an asterisk (*) pre-populated a printed resource sheet with catchment zone resources
For questions with less than 40 responses, the remainder did not answer that question.
HIV: human immunodeficiency virus; AIDS: acquired immunodeficiency syndrome

Figure 1. Focus of community programs that would be most beneficial selected by SJBC patients
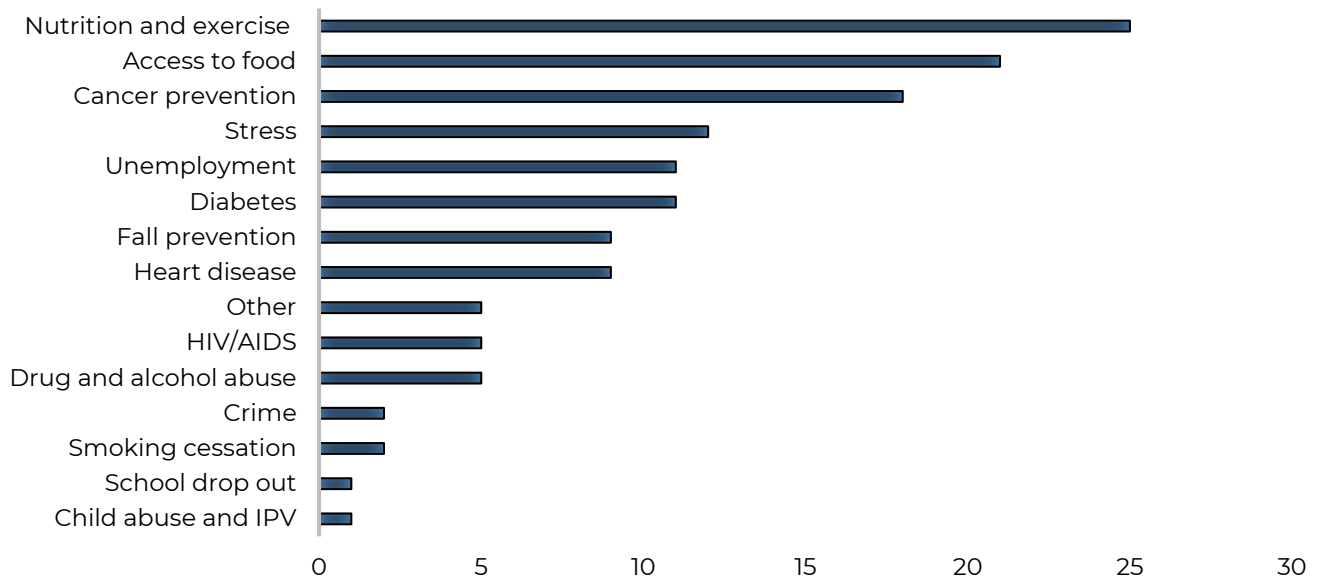
n=37, HIV: human immunodeficiency virus; AIDS: acquired immunodeficiency syndrome; IPV: intimate partner violence

Table 3. Highest priority concern for participants (n=35)

Primary Concern	n=35	%
Nutrition and exercise	9	25.7
Unemployment	7	20.0
Health concerns	4	11.4
Diabetes	2	5.7
Finances	2	5.7
Stress	2	5.7
Legal status	2	5.7
Being with family	1	2.9
Dental care	1	2.9
Cancer prevention	1	2.9
Healthcare access	1	2.9
Heart disease	1	2.9
Learning English	1	2.9
Smoking cessation	1	2.9

Table 4. Barriers to resource connection at initial phone call (n=24) and follow up phone call (n=5)

Initial Phone Call	n=24	%
Did not have time	9	37
Did not feel comfortable	1	4
Did not need the resources	1	4
Other*	13	54

Second Phone Call	n=5	%
Did not have time	2	40
Did not need the resource	1	20
Other*	2	40

samples of open-ended responses are described in Table 5.

for depression by standardized screen; SNAPs and clinic staff made these participants direct appointments for the next available psychiatry specialist night. No participants screened positive for active suicidality.

Community Concerns of Participants

After completing the SDOH screen, participants were given a list of potential concerns and asked to rank their highest priority concern for their family; 35 participants completed the survey (Table 3). The most frequently reported concerns for individuals were nutrition and exercise (n=9) and unemployment (n=7).

Participants were asked to identify multiple areas for expansion of community programming. A total of 37 participants responded. Top areas included nutrition and exercise, access to food, and cancer prevention (Figure 1).

Follow-Up Post-survey

Of 40 participants, 24 (60%) were successfully

Table 5. Selected Transcripts of Qualitative Feedback and Recommendations for Improvement

Phone Call
"I am very busy taking care of my 2 young grandsons. This makes it difficult for me to find time to reach out to these resources. I also do not have a car, so transportation limits me as well."
"I have been dealing with several medical appointments lately and want to get the results of all of these tests before I worry about calling these resources. However, I am very interested in contacting them and would like to try making a dental appointment soon. If you call me in two more weeks we can discuss this again, hopefully by then I will have contacted them."
"I tried to contact one of the resources that offers English classes, but no one picked up. This may have been because it was over the holidays, so I will try calling again this week."
"I tried contacting a couple of the resources by phone and left a message but have not heard back."

reached by phone and completed a follow-up survey. Of these, 5 reported that they had successfully connected with resources. Another 5 participants requested a second follow up phone call. When reached a second time, 2 of the 5 reported connecting to resources in the interim. In total, 7 (29%) of 24 participants reached for follow-up phone call connected with resources. Respondents reported accessing the following: care-messaging (n=3), nutrition resources (n=1), attended psychiatry appointment (n=1), went to the Miami Dade County Dental Clinic (n=1), and an outside healthcare clinic (n=1).

Participants were also asked to choose from a list of reasons why they had not accessed resources (Table 4). Many (n=15) participants said they did not have time. The 5 respondents who requested and received a second phone call were also asked why they hadn't contacted the resources given. For those who chose 'other', answers are transcribed in first or third person in English; these are presented in Table 5.

Of those contacted for post-survey, 18 (75%) reported that they found the resource assessment 'helpful', while 4 (17%) indicated that they found the assessment 'somewhat helpful, but it could be improved'. No participants rated the survey as 'unhelpful.' No response was given by 3 of the participants.

All post-survey respondents were asked for feedback regarding the SDOH screen and resource connection process; 9 participants provided suggestions (Table 6).

Discussion

SDOH have a large impact on multiple primary care indicators, including chronic disease management and use of health services.[2] Although others have explored SDOH screens and resource connection tools, few have reported on the development and implementation of these protocols in an SRFC.[13,14] We piloted an electronic tool in a student-run clinic in Miami. All participants requested information about community services and received in-survey motivational interviewing. Some participants requested printed information regarding advanced directives and voting. All participants were screened for high-risk needs, and 17.5% screened positive for depression with successful direct referral to psychiatry night. On post-survey, all participants found the tool at least somewhat helpful.

Previous work has found resource connection to outside organizations to be variably successful.[9-11] Unfortunately, less than a third of post-survey respondents in our study successfully connected with a community resource. We characterized the barriers to resource connection, finding that the most cited was lack of time. Multiple participants also reported issues with the referral process itself including: discomfort or uncertainty when contacting organizations, difficulty reaching the organizations, and that the organizations were unhelpful. These findings support the implementation of "closed loop" referrals, in which patients are directly and immediately connected to resources.[23] This was modeled by Smith and colleagues at an SRFC by connecting patients who screened positive for food insecurity with same-day assistance applications, boxes of groceries, or direct referrals to local food banks.[13]

After the pilot, quarterly meetings were established to review feedback from SNAPs, clinic lead-

Table 6. Recommendations for improving the SDOH screen and resource connection process (n=9)

Suggestions for Improvement
"The resources are confusing. I'm not sure which ones I should contact and how to reach out to them. I'm not sure exactly what each resource is offering, so it is difficult to decide which ones to reach out to and how to do so. I also feel somewhat uncomfortable reaching out for help at times, so I have not tried calling any of the resources yet."
"I really enjoyed this process and found it lovely and very helpful. I did hear that there is a clinic that has a shuttle to transport patients to and from their appointments, which I think would be very helpful because I do not have a vehicle, but I am not sure if that is something you all could implement."
"(I) would like to see a shuttle to help with transportation to and from clinic."
Immigration status
She was adamant about being very busy with her elderly father and not having time for many of these resources that may require her to go somewhere in person. She thinks maybe providing resources that can help over the phone would be helpful for her.
"Nothing to change."
Nothing to change. She was grateful for the follow up call but has not yet had time to use the resources.
She thinks everything is great and helpful.
"No changes, it was very helpful."

ership, and participants. Use of an electronic questionnaire ensured that the tool is amenable to iterative development. In response to feedback that the quantity of resources was overwhelming, SNAPs were encouraged to focus on one to two organizations per need. Each participant was asked to prioritize a specific need and to commit to contacting organizations that meet that need in the two-week follow-up period. In response to requests that remote resources are preferred, Care Messaging (a messaging platform designed to provide personalized support to help underserved populations meet their goals, whether it be in nutrition, physical activity, or other preventative care measures) and other technology-based resources were highlighted in the clinic. Pilot results demonstrated that over half of participants were interested in an advanced directive; a Spanish-language advanced directive card has since been embedded into the RedCAP interface. The adaptability of the RedCAP survey could make it a useful tool for other SRFC to shape to the communities that they serve.

In regards to the clinic program development, multiple initiatives were launched in reaction to this study. Due to the high demand by participants for increased nutrition education, two SNAPs worked to organize a free nutrition class in the clinic. To facilitate closed-loop connections, a Community Resource Fair was organized. The fair invited community organizations to the clinic and SJBC patients were invited to attend and learn about their services. Important next steps include continuing to strengthen these connections with community organizations so that standardized referral processes can be established.

Limitations to our pilot include small sample size and primarily descriptive analysis. Importantly, focus groups with patients were not formed, which limited the ability to guide development through comprehensive patient suggestions. Factors, including xenophobia and racism, as well as concerns with citizenship and documentation were not directly addressed, which could present as significant barriers to medical and social care. Additionally, sustainability is an area of concern in a SRFC, where there is yearly turnover of student leadership.

While the connection of participants to outside resources was limited, our REDCap-based tool is unique in its in-survey motivational interviewing, prioritization of high-risk needs, and assessment of the facilitators and barriers to success. Future initiatives include modifying this screen to be used at other SRFC and strengthening relationships between the clinic and community organizations.

Disclosures

The authors have no conflicts of interest to disclose.

References

1. Remington PL, Catlin BB, Gennuso KP. The county health rankings: rationale and methods. Popul Health Metr. 2015;13(1):11. LINK

2. Hood CM, Gennuso KP, Swain GR, Catlin BB. County health rankings: relationships between determinant factors and health outcomes. Am J Prev Med. 2016;50(2):129-35. LINK

3. Fraze TK, Brewster AL, Lewis VA, Beidler LB, Murray GF, Colla CH. Prevalence of screening for food insecurity, housing instability, utility needs, transportation needs, and interpersonal violence by US physician practices and hospitals. JAMA Netw Open. 2019;2(9):e1911514-e. LINK

4. Kaiser Permanente Research: Social Needs in America [Internet]. 2019. Available from: https://www.risehealth.org/insights-articles/social-determinants-of-health-68-of-americans-surveyed-have-experienced-at-least-one-unmet-social-need-in-the-past-year/. LINK

5. Buitron de la Vega P, Losi S, Martinez LS, et al. Implementing an EHR-based screening and referral system to address social determinants of health in primary care. Med Care. 2019;57:S133-S9. LINK

6. Gottlieb LM, Tirozzi KJ, Manchanda R, Burns AR, Sandel MT. Moving electronic medical records upstream: incorporating social determinants of health. Am J Prev Med. 2015;48(2):215-8. LINK

7. Berg K, Doktorchik C, Quan H, Saini V. Meaningful information in the age of big data: a scoping review on social determinants of health data collection for electronic health records [Internet]. 2019. Available from: https://www.researchsquare.com/article/rs-7076/v1. LINK

8. Shah NR, Rogers AJ, Kanter MH. Health care that targets unmet social needs. NEJM Catal. 2016;2(2). LINK

9. Gottlieb LM, Wing H, Adler NE. A systematic review of interventions on patients' social and economic needs. Am J Prev Med. 2017;53(5):719-29. LINK

10. Fox CK, Cairns N, Sunni M, Turnberg GL, Gross AC. Addressing food insecurity in a pediatric weight management clinic: a pilot intervention. J Pediatr Health Care. 2016;30(5):e11-e5. LINK

11. Manian N, Wagner C, Placzek H, Darby B, Kaiser T, Rog D. Relationship between intervention dosage and success of resource connections in a social needs intervention. Public Health. 2020;185:324-31. LINK

12. Smith S, Thomas R, Cruz M, Griggs R, Moscato B, Ferrara A. Presence and characteristics of student-run free clinics in medical schools. JAMA. 2014;312(22):2407-10. LINK

13. Smith S, Malinak D, Chang J, et al. Implementation of a food insecurity screening and referral program in student-run free clinics in San Diego, California. Prev Med Rep. 2017;5:134-9. LINK

14. Goel AN, Michel J, Sathianathan S, Youssef N. iRefer: A novel application for making referrals at a student-run free clinic. J Stud Run Clin. 2017;3(1). LINK

15. The Children's Trust. Little Haiti Community Needs Assessment [Internet]. 2015. Available from: https://www.thechildrenstrust.org/sites/default/files/kcfinder/files/providers/analytics/reports/Little_Haiti_Miami-Dade_County-May2015.pdf. LINK

16. Manchanda R, Gottlieb L. Upstream Risks Screening Tool and Guide V2.6 [Internet]. Los Angeles (CA): Health Begins; 2015. Available from: https://www.aamc.org/media/25736/download. LINK

17. Demography NCI Standard Template [Internet]. Bethesda (MD): National Library of Medicine; 2012. Available from: https://cde.nlm.nih.gov/formView?tinyId=7JlBFjBiMf. LINK

18. Sherin KM, Sinacore JM, Li X-Q, Zitter RE, Shakil A. HITS: a short domestic violence screening tool for use in a family practice setting. Fam Med. 1998;30:508-12. LINK

19. Indiana Protection for Abused and Trafficked Humans Task Force. Human Trafficking Identification: Screening Tool and Report [Internet]. 2017. Available from: https://www.ismanet.org/pdf/news/HumanTraffickingScreeningTool.pdf. LINK

20. Manea L, Gilbody S, McMillan D. Optimal cut-off score for diagnosing depression with the Patient Health Questionnaire (PHQ-9): a meta-analysis. CMAJ. 2012;184(3):E191-E6. LINK

21. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inform. 2009;42(2):377-81. LINK

22. 2015–2020 Dietary Guidelines for Americans. 8th Edition [Internet]. Washington (DC): United States Department of Health and Human Services and United States Department of Agriculture; 2015. Available from: https://health.gov/our-work/food-nutrition/previous-dietary-guidelines/. LINK

23. Yuri Cartier CF, Gottlieb L. Community Resource Referral Platforms: A Guide for Health Care Organizations [Internet].San Francisco (CA): University of San Francisco California; 2019. Available from: https://sirenetwork.ucsf.edu/tools-resources/resources/community-resource-referral-platforms-guide-health-care-organizations. LINK