ORIGINAL RESEARCH

"Wanting the Best for Our Folks"—A Mixed Methods Analysis of Community Health Center Social Risk Screening Initiatives

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Background: Many community health centers (CHC) are scaling social risk screening in response to growing awareness of the influence of social adversity on health outcomes and concurrent incentives for social risk data collection. We studied the implementation of social risk screening in Texas CHCs to inform best practices and understand equity implications.

Methods: Convergent mixed methods of 3 data sources. Using interviews and surveys with CHC providers and staff, we explored social risk screening practices to identify barriers and facilitators; we used electronic health record (EHR) data to assess screening reach and disparities in screening.

Results: Across 4 urban/suburban Texas CHCs, we conducted 27 interviews (15 providers/12 staff) and collected 97 provider surveys; 2 CHCs provided EHR data on 18,672 patients screened during the study period. Data revealed 2 cross-cutting themes: 1) there was broad support for social risk screening/care integration that was rooted in CHCs' mission and positionalities, and 2) barriers to social risk screening efforts were largely a result of limited time and staffing. Though EHR data showed screens per month and screens/encounters increased peri-pandemic (4.1% of encounters in 8/2019 to 46.1% in 2/2021), there were significant differences in screening rates by patient race/ethnicity and preferred language (*P* < .001). In surveys, 90.0% of surveyed providers reported incorporating social risk screening into patient conversations; 28.6% were unaware their clinic had an embedded screening tool.

Conclusions: Study CHCs were in the early stages of standardizing social risk screening. Differences in screening reach by patient demographics raise concerns that social screening initiatives, which often serve as a path to resource/service connection, might exacerbate disparities. Overcoming barriers to reach, sustainability, and equity requires supports targeted to program design/development, workforce capacity, and quality improvement. (J Am Board Fam Med 2023;36:817–831.)

Keywords: Health Care Disparities, Health Equity, Implementation Science, Patient-Centered Care, Population Health, Qualitative Research, Screening, Social Determinants of Health

Introduction

In striving to improve both care equity and quality, the health care sector is increasingly attending to patient social risk factors, such as food insecurity and unstable housing.[1–5] Multiple health professional societies have endorsed health care activities to

both identify and mitigate the impacts of patients' social risk factors.[6–10] Enthusiasm for better integrating medical and social care is based on growing evidence that awareness of patient social risks and efforts to address identified social barriers in health care settings can improve patient health and wellness.[11–28]

Despite the expansion of social risk data collection in clinical settings,[29] little existing research has examined clinical factors that contribute to screening integration and reach.[30]

Community health centers (CHCs), led by the efforts of the National Association of Community Health Centers (NACHC) and the Association of Asian Pacific Community Health Organizations (AAPCHO), have been early adopters of social risk screening.[31,32] A set of CHCs in Texas began piloting NACHC and AAPCHO's Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) screening tool in 2017.[33–35] Building on this work, in 2019, a multi-stakeholder effort between state health plans, the Texas Health and Human Services organization, and the Center for Health Care Strategies, launched the Texas Managed Care Organization Social Determinants of Health Learning Collaborative, to increase state Medicaid health plan adoption of social risk screening and interventions.[36] This study explores the implementation of social risk screening in 4 community health centers (CHCs) in Texas to identify the facilitators and barriers to screening reach, adoption, and sustainability in pre- and peri-COVID-19 pandemic periods, and potential impacts on equity.

Methods

We recruited a convenience sample of 4 CHCs in urban/suburban Texas. Sites were initially contacted via a prerecruitment survey distributed to CHC leadership participating in the Texas Community-Centered Health Homes Initiative in June 2019.[37] CHCs were eligible for participation if they reported initiatives to screen all or most of their patients using a standardized multi-domain social risk screening tool for at least the 6 months before the prerecruitment survey. Two study sites were using the PRAPARE social risk screen tool; 2 sites had developed their own screening tools. Study sites received a stipend for participating. Each CHC could have multiple clinical practice sites. All study activities were approved by the University of California, San Francisco, Institutional Review Board.

Data Sources

We used a convergent mixed methods design with 3 sources of study data: 1) staff/provider key informant interviews, 2) provider surveys, and 3) patient electronic health record (EHR) data. Staff were health care team members working at the front desk, medical assistants, social workers, community health workers (CHWs), or in other CHC leadership positions. Providers were health care team members delivering direct clinical care to patients and included physicians, nurse practitioners, physician assistants, and dentists. Staff/providers were recruited regardless of their level of involvement with social risk data collection. We recruited a target of 4 staff and 4 providers for interviews at each CHC, with the goal of recruiting until we reached thematic saturation. We recruited all providers at participating CHCs to complete a Qualtrics survey. CHC study site contacts provided e-mail information to recruit eligible participants for individual interviews and surveys.

All research activities were remote. Research staff reviewed study details and acquired informed consent from participants over Zoom before starting interviews. Interviews were designed to take approximately 45 to 60 minutes. Participants self-completed an online consent before starting the Qualtrics survey. Participants could skip any interview or survey question. Study participants received $100 gift cards for participating in interviews and $20 gift cards for completing surveys.

From each CHC, we requested individual-level patient EHR data on patients screened/not screened for the 12 months before the start of the COVID-19 pandemic to the 12 months after the start of the pandemic (03/2019-03/2021). Participation in the EHR data review was not required for study participation. All data collection

and analyses were conducted from 11/2020 to 11/2022.

Measures

Semistructured interview guides probed on knowledge and perspectives related to CHC's and individuals' use of social risk screening tools, barriers and facilitators to social care activities, perspectives on social care integration, and the effect of the COVID-19 pandemic on social care practices. Provider surveys queried individual and clinic-wide social care practices before and after the start of the COVID-19 pandemic, perspectives on social care, and training for social care activities. Participant demographics were asked in both interviews and surveys to enable an analysis of differences in perspectives based on participant characteristics, including race/ethnicity as a proxy for prior experience of racism.[38] Interview guides and surveys were piloted at an urban academic family medicine clinic (n = 7; 4 providers, 3 staff) before finalizing. (See Online Appendix 1 for full text of interview guides and surveys).

Requested clinic-level EHR data included the number of patient encounters per month and number of administered social risk screenings per month. Requested encounter-level data included patient demographics (age, sex, race/ethnicity [as a proxy for experience of racism[38]], preferred language), frequency and type of clinic visits, and social risk screening tool results (data entered into structured data fields). To be coded as a social risk screening, screening results had to be documented in the EHR's structured data fields for more than 1 social risk screening domain; we did not have data to verify if screening occurred without documentation within structured data. Two of the 4 CHCs shared EHR data with the study team. (See Online Appendix 2 for background on site screening practices). In the other CHC cases, 1 lacked the staff capacity to extract and share EHR data; the other had established rules against sharing deidentified EHR data without patient consent and obtaining patient consent was too resource intensive given limited study funding. Both CHCs that provided EHR data had formal data use agreements in place to protect the sharing of deidentified patient-level data. One study site screened patients using PRAPARE, which includes the social risk domains: housing instability, domestic violence, educational attainment, employment situation, food insecurity, utilities insecurity, transportation insecurity, and lack of access to needed medical services, phone, clothing, childcare. The other study site screened patients using the unique tool they developed that includes the social risk domains: housing instability and quality, community safety, educational attainment, employment situation, food insecurity, utilities insecurity, transportation insecurity, legal needs, and financial strain.

Data Analyses

Deidentified audio recorded interviews were transcribed by Rev.com.[39] Three study researchers (EHD, BA, NR) initially reviewed the same 8 transcripts and used inductive coding to develop a preliminary codebook. This codebook was then applied to all transcripts by 2 researchers (EHD, BA) in Dedoose 8.3.41.[40] Each researcher independently coded every transcript and met periodically to discuss codes and edit the codebook as needed. Additional study researchers (NR, LMG) helped to resolve coding discrepancies. Basic thematic analysis and constant comparative methods were used to analyze transcripts. Preliminary codes and themes were presented to study site contacts for feedback.

Surveys and EHR data were analyzed using descriptive and Chi-square inferential statistics. Descriptive analyses of provider survey data focused on 1) awareness and use of standardized screening tools, 2) cited barriers to screening (rated on 3-point Likert scale: "Major barrier"/"Minor barrier"/"Not a barrier"), 3) perspectives on social care activities, and 4) training for social care activities. (See Online Appendix 3 and Online Appendix Table 1 for additional details on how these survey questions were asked and coded). Descriptive analyses of EHR data focused on evaluating the monthly frequency of social risk screening to look for trends in screening rates per encounters in the pre-/peri-COVID-19 period (CHC-level outcome; includes repeat screenings for patients who were screened more than once over the study period). Chi-square inferential analyses at Site 2 evaluated if/how patient demographics varied between patients who were versus were not screened for social risks over the study period (patient-level outcome; demographics used from the first time a patient was screened if they were screened more than once). We did not evaluate the frequency with which individual patients were screened.

Data sources were combined to identify cross-cutting themes. Interview, survey, and EHR data were analyzed first independently and then in comparison to complement and inform each other.[41,42] This convergent mixed method design was appropriate and

Table 1. Overview of Three Study Data Sources

| | Interviews | | Surveys | EHR Data |
	Staff	Providers	Providers	Patients
Site 1	4	5	9	8,236 unique patients screened for social risks
Site 2	1	3	31	35,635 unique patients (10,436 unique patients screened for social risks)
Site 3	3	3	45	–
Site 4	4	4	12	–
Total	12	15	97	43,871 unique patients; 18,672 unique patients screened for social risks

Abbreviation: EHR, Electronic health record.

desirable for a descriptive case study where the focus was on understanding different aspects of screening for social care. We followed current mixed methods manuscript preparation and reporting guidelines.[43]

Results

Across the 4 CHCs, we conducted 27 key informant interviews (n = 15 providers, 12 staff). [Table 1].

Ninety-seven of 321 eligible providers completed a survey (average response rate 30.2%; range by CHC 24.7 to 47.0%). [Table 2]. EHR data were available for 43,871 unique patients who had at least 1 encounter at CHC Site 1 or 2 between August 2019 and February 2021. Of these patients, 18,672 were screened at least once for social risks, 4283 of whom had screened positive for ≥1 social risk factor (22.9%).

Table 2. Demographics of Participating Staff (N = 12 Interviews) and Providers (N = 15 Interviews; 97 Surveys)

| | Interviews | Surveys | |
| | | | |
Demographics of Staff/Providers	Staff N = 12 N (%)	Providers N = 15 N (%)	Providers N = 97 N (%)
Age			
20 to 24	1 (8.3)	0	0
25 to 34	9 (75.0)	6 (40.0)	29 (33.0)
35 to 44	1 (8.3)	7 (46.7)	33 (37.5)
45 to 75+	1 (8.3)	2 (13.3)	22 (25.0)
Gender			
Man	3 (25.0)	5 (33.3)	22 (25.3)
Woman	9 (75.0)	10 (66.7)	61 (70.1)
Non-binary	0	0	1 (1.1)
Prefer not to answer	0	0	3 (3.5)
Race/ethnicity			
Non-Hispanic White	3 (25.0)	1 (6.7)	34 (39.1)
Non-Hispanic Black	2 (16.7)	4 (26.7)	7 (8.1)
Hispanic	5 (41.7)	4 (26.7)	15 (17.2)
Non-Hispanic Asian	2 (16.7)	6 (40.0)	16 (18.4)
Other/Non-Hispanic multiple races	0	0	9 (10.3)
Prefer not to answer	0	0	6 (6.9)
Years working at clinic			
Less than 1	1 (8.3)	2 (13.3)	11 (12.2)
1 to <3	3 (25.0)	3 (20.0)	33 (36.7)
3 to <5	5 (41.7)	4 (26.7)	26 (28.9)
≥5	3 (25.0)	6 (40.0)	26 (28.9)

CHCs in the study served demographically different populations; adult patients screened from Site 1 had a greater preference for both English and Spanish language compared with Site 2 (63.9% English and 35.6% Spanish, vs 52.1% English and 23.6% Spanish, respectively). More patients identified as non-Hispanic Asian at Site 2 (22.9% vs 6.6% at Site 1). (Online Appendix Table 2).

Mixed methods analyses of data across the 4 CHCs surfaced 2 main themes: 1) there was broad support for social risk screening/care integration that was rooted in CHCs' mission and positionalities, and 2) barriers to social risk screening efforts were related to lack of time and staffing and contributed to downstream inequities in screening reach. [Table 3]. Survey and interview findings did not vary by participant demographics. Study site feedback in the coding process provided verification of findings and did not change any codes or subsequent thematic development.

Theme 1: Broad Support for Social Risk Screening/Care Integration

In interviews and surveys, participants from the 4 CHCs expressed support for integrating social risk screening into clinical activities. In interviews, there was recognition across participant type that patients were experiencing social risks that adversely impacted health, and it was therefore important that the health care team be aware of patients' social context. As 1 provider put it, "I do feel it is a huge part of the medical visit in the sense that I can treat the medical aspect of their care, but if there are social determinants [affecting] that care, then I am not going to be able to effectively treat the medical aspects." Moreover, being aware of and responsive to patients' social risks was seen as core to the underlying mission of the CHCs. Interviewees consistently noted that trusting and longstanding patient-/community-health care team relationships facilitated social risk screening, as did the related fact that many CHC employees were from the community. A staff member noted, "And that is the spirit that is reflected in our doctors. That is the spirit that is reflected on our medical teams and front desk teams. Because, like 50% of them are from the community itself. So they do understand the pulse of the community." Support for social risk screening was reflected in provider surveys where 90.0% of participants (n = 81/90) reported asking about social risks during their clinical conversations. See Online Appendix Table 1 for full survey responses.

EHR data available from Sites 1 and 2 demonstrated that both the number of screenings administered each month and the rates of screening per clinical encounter increased over time, including after the start of the COVID-19 pandemic. Provider survey responses across study sites confirmed the reported COVID-related increase in screening rates (Figure 1, Online Appendix Table 1). In interviews, these increases were attributed to many factors, 1 being that some CHCs expanded pilot, single site screening initiatives to additional clinical sites. The increase in screening numbers took place in the context of an overall decrease in total patient encounters (mean, 9506.0 encounters/month pre-3/2020; mean 6723.4 encounters/month post-3/2020), which interviewees attributed to the COVID-19 pandemic in winter/spring 2020 and a state-wide natural disaster in 02/2021.[44] Although interview participants acknowledged that social risk screening efforts were paused temporarily across sites at the start of the pandemic, all 4 CHCs restarted screening efforts shortly thereafter. One CHC launched an initiative to screen patients via text messaging. This strategy stemmed from the staff's recognition that the pandemic had contributed both to new patient financial burdens and reduced the number of clinical encounters.

Theme 2: Barriers to Social Risk Screening Efforts Were Related to Lack of Time and Staffing and Contributed to Downstream Inequities in Screening Reach

Lack of time and staffing for screening were the most consistently reported barriers to social risk screening and influenced the other barriers mentioned in interviews, for example, lack of resources to address patient needs and lack of training to screen. On surveys, 80.7% of providers (n = 67/83) reported that time was a barrier to screening; 54.2% reported it was a "major" barrier (n = 45/83). The primary modality of screening across sites was self-complete by article that was later entered into the EHR by staff. At 1 CHC, screenings were temporarily self-completed using a QR code sent to patients by text message. That same CHC also had medical assistants ask patients the screening questions during rooming in video or telephone visits but noted that visits were primarily in person throughout the study period (limited virtual care

Table 3. Study Themes with Supporting Data

Theme 1: Broad Support for Social Risk Screening/Care Integration

Subtheme	Provider/Staff Illustrative Interview Quotes	Provider Survey Data	EHR Data
Increase in screening efforts	*The reason why we passed the torch to the back [as opposed to front office] is because once the patient gets to the back of the clinic, that's when they open more [...][T]rying to figure out where should we be screening for SDoH, 'Should it be in the front? Should it be in the back? Should it be the doctor? Should it be the MA? Should it be once we connect them to the care coordinator?' to see when the patient would actually give us the right answers or not the right answers, but the honest answers.* – Staff *[T]he constraints that we have on all that just make it hard when time is such a factor for our visits. But I still find it important, so I still incorporate [social risk screening] into my visit somehow.* – Provider	Social needs screening activities at my clinic have (1 = Decreased; 10 = Increased) (n = 87): Mean 6.8, 0.23 S.E.,* 95% CI 6.4–7.3	Combined social risk screening rate† at Site 1 & 2: August 2019: 4.1% February 2021: 46.1% Peak: January 2021: 55.9%
Mission aligned	*[T]his [is] the stuff that this place has been attuned to for a long time. I mean, before we were calling things social determinants of health...what they talked about was treating the whole person in a holistic view and providing wraparound services. And so having social work, talking about resources, trying to connect with resources, partnering with other agencies, that was something that the folks here were already attuned to and doing when I got here. So when things came up in the course of treating patients or working with patients, it was very much felt to be part of their care for us to try to connect them with resources and stuff. But we weren't proactively looking for issues around social determinants of health in any systematic or standard way. ...the idea of advocating around those issues and the idea of trying to have the resources has been kind of long-standing.* – Provider	Social needs screening and referral activities at my clinic have become (1 = Less important, 10 = More important) (n = 87): Mean 7.4, 0.24 S.E., 95% CI 6.9-7.8	-
Facilitated by trust/ longstanding position in community	*[T]he reason we're asking these questions is knowing that all of this impacts your health, and we want to do better to support you on your journey to health as much as we can, based on the work that's being done here. And so I think trust-building takes a long time. Just by being in the community for more than 25, 30 years, folks know us, we've been around for a long time and always strive every day in our services to communicate the fact that it really doesn't matter to us race, ethnicity, belonging. But we are here to provide the best quality services possible. And then our initiatives, whether it's food prescriptions, or medical legal partnerships, and other things that we're working on all stem from the fact of wanting the best possible health for our folks.* – Staff	The likelihood that patients at my clinic bring up topics related to their social needs has (1 = Decreased; 10 = Increased) (n = 89): Mean 7.1, 0.20 S.E., 95% CI 6.7-7.5	-

Theme 2: Barriers to social risk screening efforts could be traced back to lack of time and staffing, which contributed to downstream inequities in screening reach

| Subtheme	Provider/Staff Illustrative Interview Quotes	Provider Survey Data	EHR Data
Time barrier to screening	*[W]ell, not all of them answer the questions, so sometimes we have to ask the questions but we don't always have the time to go over the screening, especially if someone that we have seen multiple times or is something that just not addressed in the visit. ...the majority of patients don't like filling out information. ... They think they've done it before, so they don't want to do it every time they go into the clinic.* – Provider	Perceived barriers to screening: I didn't have enough time to conduct screening: Major barrier: 45 (54.2%) Minor barrier: 22 (26.5%) Not a barrier: 16 (19.3%)	-

Continued

Table 3. Continued

Theme 1: Broad Support for Social Risk Screening/Care Integration			
Subtheme	Provider/Staff Illustrative Interview Quotes	Provider Survey Data	EHR Data
Staffing barrier to screening	*[I]f a patient is screened by one of our community health workers or health educators, then the staff is the one who is updating that on our EHR, so that the provider can . . . see that updated information on if and how the patient was helped and if a referral is made. Sometimes, our community health workers and health educators just get overworked.* – Staff	There were technology barriers to conducting screening: Major barrier: 10 (23.2%) Minor barrier: 30 (36.6%) Not a barrier: 33 (40.2%)	-
Language/literacy barriers to screening	*[T]he other challenge, with their patient population, with the educational background, and then the language barriers...They've made it at the most basic level for patients to understand as best they can, but there's still just those barriers from the patient side. The MAs can do it efficiently, but then there's still some information that the patient may not want to share directly, so it's easier to put on a form, but then those forms are not in the right language. But we offer all of those things in different languages, but there's still that barrier. Patients still can't quite necessarily grasp it, or need helping filling it out, but then that takes time, and then the MA will have to walk them through it, so then that just bleeds into . . . like domino effect.* – Provider	-	see Figure 2 & Table 4
Other barrier: Lack of social services	*Well, the easiest one is the food insecurity one because we literally have a resource that comes to the campus. Don't have to tell them. The thing that I've noticed is you can give them information about a resource, but if it's way too out of their way, they're not going to utilize it.* – Staff *[A] paper resource guide is a great first step. Our electronic resource guide is a great first step, but we know it has to be more tailor made[.] Also do these organizations truly have capacity? So that's another thing to see with health navigation, is where are we referring to? What's the success rate of referrals and where are those gaps. And why is there no capacity?* – Staff	Perceived barriers to screening: There were no/not enough community social services or community resources available to address our patients' needs so I didn't think it made sense to screen for these needs. Major barrier: 21 (25.0%) Minor barrier: 32 (38.1%) Not a barrier: 31 (36.9%)	-
Other barrier: Lack of communication as barrier to screening efforts	*[W]e have periods where we hear a lot and others where we just don't hear anything at all. I would say maybe two or three times a year, we have a push for, 'Don't forget to do the screening, now this is happening.' ...when they have an initiative, they announce it and it becomes big, and with time it kind of starts fading. Then we hear it again, and then it starts.* – Provider	Perceived barriers to screening: I didn't have enough training or experience to conduct screening: Major barrier: 17 (20.2%) Minor barrier: 30 (35.7%) Not a barrier: 37 (44.1%)	-
Other barrier: Top-down approach to decision making as barrier to screening efforts	*I don't think they seek out clinician feedback. They kind of just decide a workflow, try it out, and then if it doesn't work, they're like, 'Oh.' But it seems like, and I've mentioned this to them before, it's wasted effort. Because, if you have someone on the clinical side, it doesn't even have to be a clinician it can be a medical assistant, it can be a nurse, someone who's on the floor present at these discussions about clinical workflow, then, one, it will probably flow better when it's actually implemented. And two, you haven't put in a lot of work to something that might not work.* – Provider	-	-

Abbreviations: SE, Standard error, CHC, Community health centers, EHR, Electronic health record.
†Social risk screening rate: number of patients screened for social risks by standardized CHC screening tool per month/number of patient clinical encounters per month.

Figure 1. Trends in number of monthly encounters and social risk screenings at 2 community health centers (CHCs) August 2019 to February 2021.
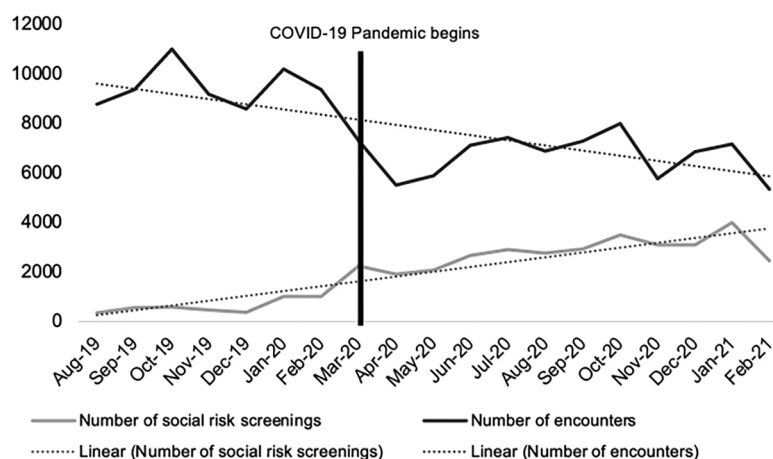
was noted by respondents across study sites related to patients' experience of digital exclusion). Interviewees highlighted not only the actual time it took to screen patients but also the time associated with follow up of positive screening results. As 1 provider noted, "[T]hey're able to fill out the questionnaire before their visit with me. But I rarely actually have time to go over it unless the patient brings up specific issues." Interviewee perceptions of the time limitations for social risk screening were influenced by whether they perceived social care as part of medical care, or as a separate/additional service. Viewing medical and social care as separate services generated more tension for providers/staff as they prioritized their clinical obligations; in these cases, screening was seen as taking time away from medical care, as summarized by 1 provider: "I think the negative is staff and [clinicians] are stretched to the brim with trying to get all this data, but not necessarily being helpful for what [patients are] coming in for at that time."

In surveys, other barriers noted by more than half of the surveyed providers included: 1) lack of community services/resources to address identified patient needs (25.0% major barrier; 38.1% minor); 2) technology (23.2% major barrier; 36.6% minor); 3) lack of training/experience to screen (20.2% major barrier; 35.7% minor); and 4) lack of patient interest in screening (4.8% major barrier; 47.6% minor) (Online Appendix Table 1). In interviews, participants recognized that lack of time and staffing were often the root cause of these barriers. For example, providers/staff noted general frustration at

the lack of accessible resources for patients and wanted to avoid screening unless they could provide assistance for any identified needs. This led to calls for colocation of social and medical services and additional funding for designated staffing, primarily CHWs, to assist patients with resources. At sites where screening was done on article or results were otherwise documented separately from the EHR, staff noted the extra time burden associated with manually entering results into EHRs. Some interviewees also noted that clinic leadership emphasized social screening only intermittently, largely based on competing clinic priorities. Lack of consistent reinforcement meant screening did not become routine practice. This was highlighted in the finding that 28.6% (n = 26/91) of providers were not aware that their clinic had a social risk screening tool.

In interviews, providers and staff acknowledged changing screening behaviors based on patients' language, literacy, and cultural demographics. This was largely because of time and staff availability.

> There are a lot of patients who unfortunately I'm sure have a lot of social determinants of health needs that aren't being addressed ... [Patients are] handed a lot of paperwork at intake. [. . .] if they're unable to read or write...the medical staff is very busy. And so they may not take the time out to read it to them and read the questions. –*Staff*

EHR screening data similarly indicated that patient factors influenced whether screening was completed. In the 1 CHC that was able to share demographic information for both patients who were

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and were not screened (Site 2, 35,635 patients), we found statistically significant differences in EHR-documented screening data by patient age, sex, race/ethnicity, and preferred language (Figure 2), even though screening was intended for all patients during visits. Patients identified as non-Hispanic White and non-Hispanic Black were more likely to be screened than Hispanic and Asian patients (32.9% and 34.1% vs 20.6% and 18.7%, respectively [P < .001]). Patients who preferred to speak English and Spanish were more likely to be screened than Arabic and Chinese-preferred patients (33.4% and 33.6% vs 18.1% and 11.9%, respectively [P < .001]). [Table 4] Some of the differences in screening by patient age/sex were in part explained by screening implementation decisions noted in interviews. For example, 1 clinic at Site 2 was initially only screening prenatal patients, which likely contributed to the site findings that female patients aged 18 to 44 were screened more frequently than male patients and patients under 18 or over 65. This CHC reported having staff who were language- and culturally-concordant with many, but not all, of the patients served by the CHC, and had access to phone interpreters.

Discussion

In this study of 4 CHCs in Texas, interviews and surveys of providers and staff revealed broad support for social risk screening. In these clinics, however, screening was not equitably distributed across the CHC population, likely secondary to clinic resource constraints. This raises the possibility that social risk screening initiatives in resource-poor settings—which are intended to be linked to offers of assistance—have the potential to worsen disparities if select patients are systematically not offered screening or subsequent services, for example, based on patients' language or racial and cultural background. Lack of time and dedicated staff—symptoms of larger systemic issues around a traditional lack of investment in primary care and social services—emerged as the main forces driving barriers to screening and screening inequity.

Though some of the differences in screening rates by patient demographics are partially explained by differences in clinic population screening targets, interviews surfaced concerns that screening was more challenging and/or less often completed for patients with limited literacy and/or language barriers, even when CHCs noted having bilingual and culturally-concordant staff. We can hypothesize that this may be why Spanish-preferring patients may be screened at similar rates to their English-preferring peers, as CHCs noted having screening tools available in Spanish and English, though not other languages, which required use of an interpreter to screen if/when bilingual staff were not available. The PRAPARE tool is available in >25 languages, but only 2 of our study CHCs were using the PRAPARE tool. Availability of the screening tool itself in multiple languages may reduce some administration time, but may still

Figure 2. Proportion of patients screened for social risks at least once at Site 2, stratified by patient demographics (n = 10,436 patients).
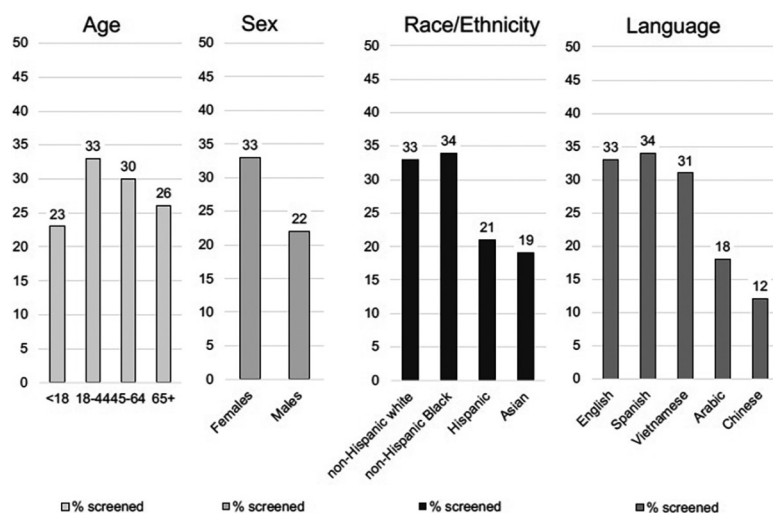
Table 4. Differences in Demographics of 10,436 Patients with ≥1 Documented Social Screen Compared to 25,199 Patients Never Screened at Site 2 (n = 35,635)

	Total	Screened at least once for social risks n = 10,436 (29.3%)	Never Screened n = 25,199 (70.7%)	
	N	N (%)	N (%)	P value
Patient level-characteristics				
Age (years) (n = 34,414 patients)*				
<18	10,569	2,391 (22.6)	8,178 (77.4)	
18 to 44	14,907	4,929 (33.1)	9,978 (66.9)	
45 to 64	7,231	2,186 (30.2)	5,045 (69.8)	
≥65	1,707	443 (26.0)	1,264 (74.0)	<0.001
Sex (n = 35,635 patients)				
Female	23,376	7,692 (32.9)	15,684 (67.1)	
Male	12,259	2,744 (22.4)	9,515 (77.6)	<0.001
Race/Ethnicity (n = 35,631 patients)				
Non-Hispanic White	15,277	5,021 (32.9)	10,256 (67.1)	
Non-Hispanic Black	9,497	3,235 (34.1)	6,262 (65.9)	
Non-Hispanic Asian	8,068	1,509 (18.7)	6,559 (81.3)	
Hispanic	1,274	263 (20.6)	1,011 (79.4)	
Non-Hispanic Other/Multiple Races	1,144	312 (27.3)	832 (72.7)	
Declined to report	371	96 (25.9)	275 (74.1)	<0.001
Language (n = 35,557 patients)				
English	18,528	6,195 (33.4)	12,333 (66.6)	
Spanish	8,528	2,869 (33.6)	5,659 (66.4)	
Chinese	1,553	184 (11.9)	1,369 (88.1)	
Vietnamese	1,980	618 (31.2)	1,362 (68.8)	
Arabic	1,806	326 (18.1)	1,480 (81.9)	
Other	3,025	199 (6.6)	2,826 (93.4)	
Declined to specify	137	29 (21.2)	108 (78.8)	<0.001
Encounter level-information				
Visit type (n = 1,54,328 encounters)†				
Routine well visit (gyn/primary care)	34,244	6,022 (17.6)	28,222 (82.4)	
Routine follow up care (gyn/obstetrics/primary care)	80,303	13,581 (16.9)	66,722 (83.1)	
Procedure visit	13,973	1,030 (7.4)	12,943 (92.6)	
Urgent/walk in care/hospital	6,150	310 (5.0)	5,840 (95.0)	
Other (e.g. Dental/eye/mental health/nutrition/specialty)	19,658	4,011 (20.4)	15,647 (79.6)	<0.001
Telehealth (n = 1,54,342 encounters)				
No	1,29,388	24,392 (16.6)	1,22,607 (83.4)	
Yes	24,954	562 (7.7)	6,781 (92.3)	<0.001

*Number of patients in each demographic domain may vary due to missing data.
†Number of encounters may vary due to missing data.

require staff to use an interpreter to assist patients with the screening. The demographic differences in screening reach occurred irrespective of the general sense that screening was important and facilitated by high levels of community trust and engagement. The participating CHCs did not have the infrastructure in place to routinely review data on screening equity; they also were not being asked to report this type of data on social screening. The lack of internal and external accountability mechanisms increases the likelihood that screening inequities will go unnoticed and unaddressed. The Health Resources & Services Administration introduced updated Uniform Data System reporting requirements for health centers in 2019 that include the number of patients screened annually for

social risks but there is no requirement to stratify by patient demographics—a missed opportunity to evaluate and enable future action on screening equity given CHCs are already separately reporting on demographic data.[45,46]

CHC resources will need to be dedicated to efforts to ensure that social risk screening and related interventions achieve their intended health equity impacts. This includes increasing the CHC workforce capacity around social care. Although our findings confirm that CHCs are deeply committed to providing high-quality, equitable care for the diverse populations that they serve, ensuring equity will require sufficient capacity so that those implementing screening can meaningfully engage with patients who need/want supports, including designing population-specific adaptations to screening. State Medicaid managed care programs, including those in Texas, allow for reimbursement for select social care-related activities.[47,48] For instance, in Texas, CHCs can bill for quality improvement initiatives focused on social care[49]; in other states, CHW visits are billable, for example, through the Pathways Community Hub model.[50] Other state programs have used Medicaid Section 1115 waivers to fund pilot interventions to screen for and address social needs.[49,51–53] These opportunities can help to scale and sustain what is otherwise often unfunded or grant-funded work, but they also may be inadequate reimbursement or incentive to overcome the many structural obstacles to adding social care workstreams into CHCs.

It will not be sufficient to increase staff diversity and capacity. In parallel, these staff will require training in screening workflows, documentation, and empathic inquiry/trust building. Although our study participants understood the reasons why screening was important, clinical workflows at participating CHCs had not been designed around screening and staff had limited/no training in how and when to conduct screening in ways that could increase patient acceptability and disclosure.[30] Almost 30% of providers were not aware their CHC had adopted a standardized screening tool. Existing implementation training and resource guides targeted to CHC contexts might help to support clinics that are launching, strengthening, and/or scaling social care activities.[54] Recommended trainings and related resources are available through PRAPARE, Centers for Medicare & Medicaid Services (CMS), Kaiser Permanente/OCHIN Inc, and the Oregon Primary Care Association.[55–59] These training/education efforts also require dedicated time and staffing.

CMS has indicated a growing commitment to expanding social care for Medicare and Medicaid beneficiaries[60–62] For example, the CMS Inpatient Quality Reporting Program launched new quality measures related to social risk screening in 2023[61] and is expected to endorse similar measures under the Merit Based Incentive Program in parallel.[63] The National Committee for Quality Assurance also adopted new HEDIS measures in 2023 on social care, which tie screening to presence of an intervention.[64] For many under-resourced health systems, these programs are unlikely to contribute to behavior change if not accompanied by infrastructure and capacity-building investments that can enable more equitable and patient-centered implementation. New social care-specific technology, including EHR-based standardized screening and related analytics programs,[65,66] have the potential to distribute the burden of screening across more personnel, for example, if screening results are directly input into EHRs and designated staff are available to track screening results, the onus of screening will not fall entirely on frontline staff. Technology alone will not lower the barriers CHCs face to systematic screening; technology must be supported by staff training and quality improvement/analytics capacity that can help institutionalize screening uptake and effectiveness. Some care management software offer services that can help clinics access and track social risk-related data, but the added costs may be prohibitive for safety-net primary care clinics.[67,68]

Limitations

This study should be interpreted considering several limitations. This is a case study of 4 urban/suburban CHCs in Texas, which limits the generalizability of findings to other geographies/populations and non-CHC health care settings. Related, this was a convenience sample of participating CHCs and individual interview and survey participants; the study is subject to selection and social desirability bias. CHCs that participated were committed to continuing to screen. Individual staff and providers who participated may have had more favorable experiences with screening than their peers who declined. Across sites, however, participants shared many

similar perspectives about the barriers to screening, which decreases the likelihood of positive response bias. Second, the study took place in the context of the COVID-19 pandemic and a natural disaster/state of emergency in Texas, all which caused major disruptions in the target CHCs. Our survey and interview sample sizes reflect these challenges. The original study plan included onsite observations and patient surveys, which we could not complete in the pandemic context. As a result of the study changes, this study does not represent patient perspectives on social risk screening. Finally, only 2 CHCs shared EHR data and datasets provided by those 2 sites did not include sufficient data to conduct comparative analyses of demographic trends in patients screened/not screened or positive social risk screens. Related, our EHR data analyses relied on social risk data documentation within structured data fields. It has been previously reported that structured data fields are underutilized and may underrepresent the true volume of screening at our study sites.[69–71]

Conclusion

Across the 4 CHCs participating in this study, providers and staff strongly supported social risk screening in CHC contexts. Findings also highlight on-the-ground barriers to implementing and sustaining screening efforts, which without adequate staff capacity have the potential to exacerbate instead of reduce disparities. Overcoming resource barriers could improve screening reach, support sustainability, and advance equity but will require more targeted investments in the CHC workforce, dedicated social care training and education, and social care data analytics capacity to support quality improvement in this area.

To see this article online, please go to: http://jabfm.org/content/36/5/817.full.

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Appendices.

Appendix 1.

Provider/Staff Interview Guides and Provider Survey Tool

Appendix 1a. Provider Key Informant Interview Guide

We are collecting some demographic information about interview participants. Would you be willing to share this information?
  a. What's your medical specialty?
  b. Years working at this clinic?
  c. Total years working/in practice? (since med school)
  d. How do you identify your race/ethnicity?
  e. Age?
  f. Gender?

Intro
I'm going to start by asking you some questions about your current role, your prior experiences with finding out about your patients' social risk factors, and what happened as a result.

1. What is your specific role around social risk screening and referral to resources in the clinic?
  a. How frequently do you yourself ask patients about their social risks?

2. Can you give us an overview of your clinic's efforts to understand and address patients' social needs?
  - History of interest in/efforts to address SDH
  - Recent screening/referral efforts
    - How decisions are made? (if relevant)
    - How are things going?
    - What support has been helpful (inside or outside org, including training, financial/technical support)?

Walk-through of a patient with social risk(s): Awareness to Assistance and Adjustment

3. Think about one of your patients who has a socially complex life—maybe has food insecurity or is homeless.
How did you find out about "X" risk?

4. Did knowing about your patient's social risk impact your medical decisions around their health care?
  If yes, how did you make these changes? (how did you discuss this with patient?)
  Are there things that would be helpful to assist you with making changes to medical plans based on patients' social risks?

EHR integration
I'm going to now ask you some questions about documentation for these activities around identifying and intervening on social risks in your clinic.

5. When you find out about a patient's social risk factor—whether or not you intervene on it-- do you typically document that information in the patient's medical record?

6. What are your concerns about documenting patients' social risk information in the EHR (e.g. adding social risks to problem list)?
Can you tell me about a time you had concerns about documenting, or something happened that made you concerned?

COVID19 Questions

7. What was the clinic's response to patients' increased hardship brought on by COVID-19?
Do you have any examples?

8. How has this impacted your understanding of your patients risks?
How has this impacted your ability to address patients' social needs?

9. Assuming many of your clinic visits moved to being televisits, how did the clinic respond to patients who didn't have broadband or video access?
- What was the impact of trying to address social risks through telehealth?
- How has the clinic addressed digital literacy, either through technical support or the way the clinic uses technology?

Facilitators/Barriers

10. What are some things that make it easier/harder to screen and assist patients with social needs at this clinic? What are the major barriers your organization faces to social care activities?

-Institutional, financial, etc.

-Influence of past year's events - pandemic, focus on structural racism?

Assessing success and sustainability

11. Given all of your experiences, do you know how the clinic is thinking about social risk screening and resource linkage for the immediate future? Do you want to see these programs continue or let them go? What would it take? Why? What would you like to see the clinic focus on/prioritize?
- **Probe:** Will you base this decision on documented benefits?
- **Probe:** Are you measuring how often screening is happening?

Wrap up

Is there anything else you'd like to share with me?
What questions do you have for us?
Thank you for being willing to talk with me about these topics. It's so helpful to hear how folks on the ground are really engaging with these new initiatives around SDH.

Appendix 1b. Staff Key Informant Interview Guide

We are collecting some demographic information about interview participants. Would you be willing to share this information?
a. Years working at this clinic?
b. Total years working/in practice (since finishing school)?
c. How do you identify your race/ethnicity?
d. Age?
e. Gender?

Intro

I'm going to start by asking you some questions about your current role, your prior experiences with finding out about your patients' social risk factors, and what happened as a result.

1. What is your role in the clinic? In what ways do you interact with patients?
>   Probes: Tell us about your clinic organization and the patients that you see.

2. What is your specific role around social risk screening and referral to resources in the clinic?
>   a. How frequently do you yourself ask patients about their social risks?

3. Can you give us an overview of your clinic's efforts to understand and address patients' social needs?
- History of interest in/efforts to address SDH
- Recent screening/referral efforts
  - How decisions are made? (if relevant)
  - How are things going?
  - What support has been helpful (inside or outside org, including training, financial/technical support)?

4. We understand that your clinic has opted to use "Y" tool to screen for social/economic factors. (show screening tool via screen share or email them tool ahead of time)
How does that work? Walk me through that.

5. What is the workflow in your clinic to respond if a patient screens positive on the social risk screening tool?
- Who is notified about a positive screen?
- If a patient screens positive on the screening tool, does the clinic follow up on whether a social need has been addressed or is ongoing? If yes, how?
  - What challenges are there to this follow up?

EHR integration

I'm going to now ask you some questions about documentation for these activities around identifying and intervening on social risks in your clinic.

6. When you find out about a patient's social risk factor—whether or not you intervene on it-- do you typically document that information in the patient's medical record?

7. What are your concerns about documenting patients' social risk information in the EHR (e.g. adding social risks to problem list)?
Can you tell me about a time you had concerns about documenting, or something happened that made you concerned?

COVID19 Questions

8. What was the clinic's response to patients' increased hardship brought on by COVID-19? Do you have any examples?

9. How has this impacted your understanding of your patients risks?
How has this impacted your ability to address patients' social needs?

10. Assuming many of your clinic visits moved to being televisits, how did the clinic respond to patients who didn't have broadband or video access?
- What was the impact of trying to address social risks through telehealth?
- How has the clinic addressed digital literacy, either through technical support or the way the clinic uses technology?

Facilitators/Barriers

11. What are some things that make it easier/harder to screen and assist patients with social needs at this clinic? What are the major barriers your organization faces to social care activities?

     -Institutional, financial, etc.

     -Influence of past year's events - pandemic, focus on structural racism?

Assessing success and sustainability

12. Given all you have learned, how is the clinic thinking about social risk screening and resource linkage for the immediate future? Do you want to see these programs continue or let them go? What would it take? Why?

- **Probe:** Will you base this decision on documented benefits?
- **Probe:** Are you measuring how often screening is happening?

Wrap up

Is there anything else you'd like to share with me?

What questions do you have for us?

Thank you for being willing to talk with me about these topics. It's so helpful to hear how folks on the ground are really engaging with these new initiatives around SDH.

Appendix 1c. Provider Survey MASTER

1. We'd like to start off by asking you a few questions about your role at **[INSERT NAME OF SITE]**.

1.1 Which of the following best describes your job position?

- ○ Physician (7)
- ○ Resident (8)
- ○ Nurse Practitioner (9)
- ○ Physician Assistant (10)
- ○ Other (11) _____

1.2 What is your specialty?

- ○ Family Medicine (1)
- ○ Internal Medicine (2)
- ○ Pediatrics (3)
- ○ Obstetrics (4)
- ○ Other (5) _____

2.1 **PRE-COVID PERIOD**

Now we would like to ask you to think back to **the year before the COVID-19 pandemic began (March 2019 to February 2020)**. We recognize this can be challenging! But please try to answer the following questions thinking about your work in **the year prior to the COVID-19 pandemic**.

These first questions focus on work you were involved with during this period specifically related to screening patients for social or economic needs that can affect health, health care, or health behaviors. This includes discussing topics like housing quality or stability, food security, internet and other utilities access, interpersonal violence, or transportation access.

2.1 Pre-COVID: Did you use your clinic's standardized social/economic screening questions (for example, PRAPARE or the Accountable Health Communities screening questions) to assess patients' social/economic needs?

- ○ Yes (1)
- ○ No (0)
- ○ I am not aware that my clinic had a social risk screening tool (2)

X→

2.2 Pre-COVID: How often did you or a member of your staff use the standardized tool to ask patients about their social/economic needs during the clinic visit?

- ○ 1 (Never) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (Always) (10)

X→

2.3 Pre-COVID: Did you ever ask patients about their social needs without using the standardized tool?

- ○ Yes (1)
- ○ No (0)

2.4 Pre-COVID: How often did you inquire about patients' social needs without using the standardized tool?

- ○ 1 (Never) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (Always) (10)

X→

2.5 Pre-COVID: Was your clinic receiving a financial incentive for documenting social/economic needs assessments?

- ○ Yes (1)
- ○ No (0)
- ○ Not Sure (2)

Display This Question:

If 2.5 = No

Or 2.5 = Not Sure

2.5 A If your clinic had received a financial reimbursement for screening, how much do you think it would have influenced your clinic's social/economic needs screening activities?

- ○ 1 (Not at all) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (A lot) (10)

2.5 B How much do you think the financial incentive reimbursement to the clinic influenced the volume of social/economic needs screening in your clinic?

- ○ 1 (Not at all) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (A lot) (10)

2.6 Pre-COVID: How much did each of the following affect your social/economic needs screening efforts?

	Major barrier (1)	Minor barrier (2)	Not a barrier (3)
Many of my patients were not interested/declined screening. (1)	○	○	○
I was worried about my patients feeling uncomfortable or stigmatized. (2)	○	○	○
I didn't have enough time to conduct screening. (3)	○	○	○
I didn't have enough training or experience to conduct screening. (4)	○	○	○
There was no incentive for me to conduct screening. (5)	○	○	○
There were technology barriers to conducting screening. (6)	○	○	○
There were no/not enough community social services or community resources available to address our patients' needs so I didn't think it made sense to screen for these needs. (7)	○	○	○
Other: (8)	○	○	○

X→

2.7 Pre-COVID: Were social/economic needs screening results readily available to clinical staff/clinicians?

- ○ No (0)
- ○ Yes, access through our EHR (1)
- ○ Yes, access through a non-EHR system (2)
- ○ Don't know (3)

2.8 Pre-COVID: My clinic had the resources, such as dedicated staff, community programs, resources or tools to address patients' social needs.

- ○ 1 (Strongly agree) (0)
- ○ 2 (1)
- ○ 3 (2)
- ○ 4 (3)
- ○ 5 (4)
- ○ 6 (5)
- ○ 7 (6)
- ○ 8 (7)
- ○ 9 (8)
- ○ 10 (Strongly disagree) (9)

3.1 POST-COVID PERIOD

Now we would like to ask you to think about the time since the COVID-19 pandemic began (March 2020 to today). Please try to answer the following questions thinking about your work since the COVID-19 pandemic. These questions might seem similar or repetitive to questions we asked you earlier. We are interested in if and how things have changed since the COVID-19 pandemic.

These first questions focus on work you have been involved with during this period specifically related to screening patients for social or economic needs that can affect health, health care, or health behaviors. This includes discussing topics like housing quality or stability, food security, internet and other utilities access, interpersonal violence, or transportation access.

3.1 Post-COVID: Have you been using your clinic's standardized social/economic screening questions (for example, PRAPARE or the Accountable Health Communities screening questions) to assess patients' social/economic needs?

- ○ Yes (1)
- ○ No (0)
- ○ I am not aware that my clinic has a social risk screening tool (2)

Display This Question:

If 3.1 = Yes

X→

3.2 Post-COVID: How often have you or a member of your staff been using the standardized tool to ask patients about their social/economic needs during the clinic visit?

- ○ 1 (Never) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (Always) (10)

X→

3.3 Post-COVID: Do you ever ask patients about their social needs without using the standardized tool?

- ○ Yes (1)
- ○ No (0)

Display This Question:

If 3.3 = Yes

3.4 Post-COVID: How often have you been inquiring about patients' social needs without using the standardized tool?

- ○ 1 (Never) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (Always) (10)

X→

3.5 Post-COVID: Has your clinic been receiving a financial incentive for documenting social/economic needs assessments?

- ○ Yes (1)
- ○ No (0)
- ○ Not sure (2)

3.5 A Post-COVID: If your clinic had been receiving a financial reimbursement for screening, how much do you think it would have influenced your clinic's social/economic needs screening activities?

- ○ 1 (Not at all) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (A lot) (10)

3.5 B Post-COVID: How much do you think the financial incentive reimbursement to the clinic has influenced the volume of social/economic needs screening in your clinic?

- ○ 1 (Not at all) (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ 7 (7)
- ○ 8 (8)
- ○ 9 (9)
- ○ 10 (A lot) (10)

3.6 Post-COVID: How much did each of the following affect your social/economic needs screening efforts?

	Major barrier (1)	Minor barrier (2)	Not a barrier (3)
Many of my patients were not interested / declined screening. (1)	○	○	○
I was worried about my patients feeling uncomfortable or stigmatized. (2)	○	○	○
I didn't have enough time to conduct screening. (3)	○	○	○
I didn't have enough training or experience to conduct screening. (4)	○	○	○
There was no incentive for me to conduct screening. (5)	○	○	○
There were technology barriers to conducting screening. (6)	○	○	○
There were no/not enough community social services or community resources available to address our patients' needs so I didn't think it made sense to screen for these needs. (7)	○	○	○
Other: (8)	○	○	○

X→

3.7 Post-COVID: Have social/economic needs screening results been readily available to clinical staff/clinicians?

- ○ No (0)
- ○ Yes, access through our EHR (1)
- ○ Yes, access through a non-EHR system (2)
- ○ Don't know (3)

3.8 Post-COVID: My clinic has had the resources, such as dedicated staff, community programs, resources or tools to address patients' social needs.

- ○ 1 (Strongly agree) (0)
- ○ 2 (1)
- ○ 3 (2)
- ○ 4 (3)
- ○ 5 (4)
- ○ 6 (5)
- ○ 7 (6)
- ○ 8 (7)
- ○ 9 (8)
- ○ 10 (Strongly disagree) (9)

3.9 Post-COVID: Social needs screening and referral activities at my clinic have become:

- ○ 1 (Less important) (0)
- ○ 2 (1)
- ○ 3 (2)
- ○ 4 (3)
- ○ 5 (4)
- ○ 6 (5)
- ○ 7 (6)
- ○ 8 (7)
- ○ 9 (8)
- ○ 10 (More important) (9)

3.10 Post-COVID: Social needs screening activities at my clinic have:

- ○ 1 (Decreased) (0)
- ○ 2 (1)
- ○ 3 (2)
- ○ 4 (3)
- ○ 5 (4)
- ○ 6 (5)
- ○ 7 (6)
- ○ 8 (7)
- ○ 9 (8)
- ○ 10 (Increased) (9)

3.11 Post-COVID: The likelihood that patients at my clinic bring up topics related to their social needs has:

- ○ 1 (Decreased) (0)
- ○ 2 (1)
- ○ 3 (2)
- ○ 4 (3)
- ○ 5 (4)
- ○ 6 (5)
- ○ 7 (6)
- ○ 8 (7)
- ○ 9 (8)
- ○ 10 (Increased) (9)

4.1 How useful were the following training topics in preparing you for social needs screening and/or referrals?

	Did not receive training on this topic. (1)	1 (Not at all useful) (2)	2 (3)	3 (4)	4 (5)	5 (6)	6 (7)	7 (8)	8 (9)	9 (10)	10 (Very useful) (11)
The rationale for social needs screening and referrals. (1)	○	○	○	○	○	○	○	○	○	○	○
How to ask about social needs and facilitate social needs screening. (2)	○	○	○	○	○	○	○	○	○	○	○
How to refer patients for social needs. (4)	○	○	○	○	○	○	○	○	○	○	○
Our local community organizations/resources (learning about community resources for social needs, "field trips" to community organizations). (5)	○	○	○	○	○	○	○	○	○	○	○
Health IT/database/EHR related to social needs screening and referrals. (11)	○	○	○	○	○	○	○	○	○	○	○
How to screen and refer patients for social needs by telehealth. (12)	○	○	○	○	○	○	○	○	○	○	○
Motivational interviewing or patient engagement training (e.g. Empathic inquiry training). (8)	○	○	○	○	○	○	○	○	○	○	○
Trauma-informed care. (9)	○	○	○	○	○	○	○	○	○	○	○
Racial equity and/or cultural competency. (7)	○	○	○	○	○	○	○	○	○	○	○

5.1 We also are interested in your clinic atmosphere around racial equity and how that may impact the clinic's engagement in social care activities. We recognize answering questions about this topic can be challenging. As a reminder, to protect your privacy your individual responses will not be shared.

Please read the following statements regarding racial equity and select the response that best describes how you feel.

	1 (Strongly disagree) (1)	2 (2)	3 (3)	4 (4)	5 (Strongly agree) (5)
My clinic is a place where all employees and patients are treated equitably regardless of race/ethnicity. (1)	○	○	○	○	○
Leaders at my clinic are taking active steps to dismantle racial inequity within our organization. (4)	○	○	○	○	○

Almost there! The following questions help us understand the range of people responding to this survey.

6.1 How many years have you worked at your current clinic?

- ○ Less than 1 year (1)
- ○ 1 to less than 3 years (2)
- ○ 3 to less than 5 years (3)
- ○ 5 or more years (4)

6.2 In total, how many half days a week do you interact with patients who receive care at this clinic?

- ○ 0 (I don't interact with patients at this clinic) (22)
- ○ 0.5 (1)
- ○ 1 (2)
- ○ 1.5 (3)
- ○ 2 (4)
- ○ 2.5 (5)
- ○ 3 (6)
- ○ 3.5 (7)
- ○ 4 (8)
- ○ 4.5 (9)
- ○ 5 (10)
- ○ 5.5 (11)
- ○ 6 (12)
- ○ 6.5 (13)
- ○ 7 (14)

- ○ 7.5 (15)
- ○ 8 (16)
- ○ 8.5 (17)
- ○ 9 (18)
- ○ 9.5 (19)
- ○ 10 (20)

6.3 What is your age?
- ○ 18 to 24 (1)
- ○ 25 to 34 (2)
- ○ 35 to 44 (3)
- ○ 45 to 54 (4)
- ○ 55 to 64 (5)
- ○ 65 to 74 (6)
- ○ 75 or older (7)
- ○ Prefer not to answer (8)

6.4 How would you describe your gender?
- ○ Woman (1)
- ○ Man (2)
- ○ Transgender woman (3)
- ○ Transgender man (4)
- ○ Genderqueer (5)
- ○ Agender or Genderless (6)
- ○ Nonbinary (7)
- ○ Another gender identity (8)
- ○ Prefer not to answer (9)

6.5 How would you describe your race/ethnicity? (Mark all that apply)

- ☐ African American/Black (1)

- ☐ American Indian/Alaskan Native (2)

- ☐ Asian/Asian American (3)

- ☐ Hispanic/Latinx/Chicanx (4)

- ☐ Middle Eastern/North African (5)

- ☐ Native Hawaiian/Pacific Islander (6)

- ☐ White/European descent (7)

☐ Mixed race/ethnicity: (8)

_____

☐ Another identity: (9) _____

☐ Prefer not to answer (10)

7.1 Please share with us any thoughts about clinical innovations or changes that your clinic has made around social/economic needs screening and/or referrals since the start of the COVID-19 pandemic.

_____

Appendix 2.

Background on Study Site Screening Practices

Site 1 had been screening patients since 08/2019 with an EHR-integrated tool that asked about financial strain, social isolation, and intimate partner violence (in addition to other behavioral domains as recommended in a 2014 NASEM report).[9,10] In 09/2020, Site 1 adopted their own standardized social risk screening tool that screened for six domains: housing-related social risk, food insecurity, transportation access, legal needs, health care access, literacy needs, and community safety, in addition to asking about interest in assistance. Site 1 shared patient-level data for patients who had been screened on either social risk screening tool from 08/14/2019-03/31/2021; we did not receive data on patients who were never screened. Site 2 had been screening patients using the National Association of Community Health Centers, Inc (NACHC) & Association of Asian Pacific Community Health Organizations (AAPCHO) PRAPARE screening tool[37] since 08/2019. The PRAPARE tool screens for housing stability, financial strain, educational attainment, employment status, access to basic needs (including food, utilities, medicine/medical care, phone, clothing, childcare), transportation access, and social isolation.[38] Site 2 shared data for patients who had been both screened and not screened from 03/01/2019-03/01/2021. Both Site 1 and Site 2 shared CHC-level monthly rates of screening (number of patients screened/number of encounters each month). Site 3 and Site 4, who did not participate in the EHR data evaluation, used the PRAPARE tool and a clinic-developed multi-domain screening tool, respectively, to screen their patients for social risks.

Appendix 3.

Survey Data Measures/Analyses

Analyses of provider survey data focused on 1) awareness and use of standardized screening tools, 2) cited barriers to screening, 3) perspectives on social care activities, and 4) training for social care activities. As participants could skip any survey question, each survey question could have a different number of survey responses. We individually analyzed survey question and did not remove participants based on presence of missing data.

1) Awareness and use of social screening tools were assessed by a question on whether respondents used their CHC's standardized screening tool, with response options "yes," "no," and "I am not aware that my clinic had a social risk screening tool."
Responses were evaluated as a trichotomous outcome.

> Question: *Did you use your clinic's standardized social/economic screening questions (for example, PRAPARE or the Accountable Health Communities screening questions) to assess patients' social/economic needs?*

A separate "yes/no" question asked whether providers inquired about social needs without using a standardized tool.
Responses were evaluated as a dichotomous outcome.

> Question: *Did you ever ask patients about their social needs without using the standardized tool?*

2) Potential barriers to screening were individually rated as "major," "minor," or "not a barrier."

Responses to each barrier were evaluated as a trichotomous outcome.
> Question*How much did each of the following affect your social/economic needs screening efforts?*

	Major barrier (1)	Minor barrier (2)	Not a barrier (3)
Many of my patients were not interested/declined screening. (1)	○	○	○
I was worried about my patients feeling uncomfortable or stigmatized. (2)	○	○	○
I didn't have enough time to conduct screening. (3)	○	○	○
I didn't have enough training or experience to conduct screening. (4)	○	○	○
There was no incentive for me to conduct screening. (5)	○	○	○
There were technology barriers to conducting screening. (6)	○	○	○
There were no/not enough community social services or community resources available to address our patients' needs so I didn't think it made sense to screen for these needs. (7)	○	○	○
Other: (8)	○	○	○

3) Perspectives of social care activities were assessed by a series of 10-point Likert scale questions on whether providers thought social care had become more/less important over time, and whether screening had increased/decreased over time.
Responses were evaluated both as continuous variables (mean, standard deviation), and categorical (number of participants reporting 6+/10 and 10/10 to each question).

Question: *Social needs screening and referral activities at my clinic have become:*
o   1 (Less important) (0)
o
...
o   10 (More important) (9)

Question: *Social needs screening activities at my clinic have:*
o   1 (Decreased) (0)
 …
o   10 (Increased) (9)

Question: *The likelihood that patients at my clinic bring up topics related to their social needs has:*
o   1 (Decreased) (0)
…
o   10 (Increased) (9)

4) Training for social care activities were asked on a series of questions and rated on a 10-point Likert scale from 1="not at all useful" to 10="very useful."
Responses were evaluated both as continuous variables (mean, standard deviation), and categorical (number of participants reporting 6+/10 and 10/10 to each question).

Question: *How useful were the following training topics in preparing you for social needs screening and/or referrals?*

	Did not receive training on this topic. (1)	1 (Not at all useful) (2)	…	10 (Very useful) (11)
The rationale for social needs screening and referrals. (1)	○	○	○	○
How to ask about social needs and facilitate social needs screening. (2)	○	○	○	○
How to refer patients for social needs. (4)	○	○	○	○
Our local community organizations/resources (learning about community resources for social needs, "field trips" to community organizations). (5)	○	○	○	○
Health IT/database/EHR related to social needs screening and referrals. (11)	○	○	○	○
How to screen and refer patients for social needs by telehealth. (12)	○	○	○	○
Motivational interviewing or patient engagement training (e.g. Empathic inquiry training). (8)	○	○	○	○
Trauma-informed care. (9)	○	○	○	○
Racial equity and/or cultural competency. (7)	○	○	○	○

Appendix Table 1. Survey Results Relevant to Screening Practices Across Four Study Sites (N = 97 Providers)

Question	Pre-COVID-19 Pandemic			Post-start of the COVID-19 Pandemic		
	N +/- mean*	% or SE†	p value†† or 95% CI§	N +/- mean*	% or SE†	p value†† or 95% CI§
Did you use your clinic's standardized social/economic screening tool?						
Yes	45	47.4		42	46.2	
No	27	28.4		23	25.3	
Not aware of screening tool	23	24.2	0.106	26	28.6	0.070
How often did you or a member of your staff use the standardized tool to ask patients about their social/economic needs during the clinic visit?: Mean; 1=never; 10=always	6.7	0.37 SE	95% CI 5.9-7.4	7	0.37 SE	95% CI 6.3-7.8
Do you ask patients about their social needs without using the standardized tool?						
Yes	80	85.1		81	90.0	
No	14	14.9	<0.001	9	10.0	0.008
How often did you inquire about patients' social needs without using the standardized tool?: Mean; 1=never; 10=always	6.1	0.25 SE	95% CI 5.7-6.6	6.7	0.27 SE	95% CI 6.1-7.2
Was your clinic receiving a financial incentive for documenting social/economic needs assessments?						
Yes	19	20.2		42	46.2	
No	15	16		23	25.3	
Unsure	60	63.8	0.332	26	28.6	0.070
If your clinic had received a financial reimbursement for screening, how much do you think it would have influenced your clinic's social/economic needs screening activities?	5.8 (N=63)	0.42 SE	95% CI 5.0-6.6	6.3 (N=62)	0.44 SE	95% CI 5.4-7.2
How much do you think the financial incentive reimbursement to the clinic influenced the volume of social/economic needs screening in your clinic?	7.8 (N=19)	0.43 SE	95% CI 6.9-8.8	6.8 (N=18)	0.53 SE	95% CI 5.7-7.9
Barriers to screening: How much did each of the following affect your social/economic needs screening efforts?						
Many of my patients were not interested/declined screening						
Major barrier	5	5.7		4	4.8	
Minor Barrier	44	50.0		40	47.6	
Not a barrier	39	44.3	0.209	40	47.6	0.615
I was worried about my patients feeling uncomfortable or stigmatized.						
Major barrier	7	8.0		6	7.1	
Minor Barrier	36	40.9		32	38.1	
Not a barrier	45	51.1	0.461	46	54.8	0.257
I didn't have enough time to conduct screening.						
Major barrier	45	51.7		45	54.2	
Minor Barrier	29	33.3		22	26.5	
Not a barrier	13	14.9	0.201	16	19.3	0.777
I didn't have enough training or experience to conduct screening.						
Major barrier	15	17.1		17	20.2	
Minor Barrier	29	32.9		30	35.7	
Not a barrier	44	50	0.268	37	44.1	0.092
There was no incentive for me to conduct screening.						
Major barrier	5	5.8		6	7.2	
Minor Barrier	15	17.2		13	15.7	
Not a barrier	67	77	0.706	64	77.1	0.726
There were technology barriers to conducting screening.						
Major barrier	16	18.4		10	23.2	
Minor Barrier	32	36.8		30	36.6	
Not a barrier	39	44.8	0.746	33	40.2	0.116
There were no/not enough community social services or community resources available to address our patients' needs so I didn't think it made sense to screen for these needs.						
Major barrier	23	27.1		21	25.0	
Minor Barrier	37	43.5		32	38.1	
Not a barrier	25	29.4	0.201	31	36.9	0.290
Were social/economic needs screening results readily available to clinical staff/clinicians?						
Yes	40	61.5		52	86.7	
No	25	38.5	<0.001	8	13.3	<0.001
Social needs screening and referral activities at my clinic have become: Mean; 1=Less important, 10=More important				7.4 (N=87)	0.24 SE	95% CI 6.9-7.8
Social needs screening activities at my clinic have: Mean; 1=Decreased; 10=Increased				6.8 (N=87)	0.23 SE	95% CI 6.4-7.3
The likelihood that patients at my clinic bring up topics related to their social needs has: Mean; 1=Decreased; 10=Increased				7.1 (N=89)	0.20 SE	95% CI 6.7-7.5

Continued

Appendix Table 1. Continued

Training: How useful were the following training topics in preparing you for social needs screening and/or referrals?			
The rationale for social needs screening and referrals: Mean; 1=Not at all useful; 10=Very useful	7.4 (N=58; 31 didn't receive)	0.29 SE	95% CI 6.9-8.0
How to ask about social needs and facilitate social needs screening: Mean; 1=Not at all useful; 10=Very useful	7.4 (N=48; 40 didn't receive)	0.29 SE	95% CI 6.8-7.9
How to refer patients for social needs: Mean; 1=Not at all useful; 10=Very useful	7.8 (N=64; 25 didn't receive)	0.26 SE	95% CI 7.3-8.3
Our local community organizations/resources (learning about community resources for social needs, "field trips" to community organizations): Mean; 1=Not at all useful; 10=Very useful	7.0 (N=43; 45 didn't receive)	0.36 SE	95% CI 6.3-7.8
Health IT/database/EHR related to social needs screening and referrals: Mean; 1=Not at all useful; 10=Very useful	6.7 (N=49; 39 didn't receive)	0.36 SE	95% CI 6.0-7.5
How to screen and refer patients for social needs by telehealth: Mean; 1=Not at all useful; 10=Very useful	6.9 (N=38; 50 didn't receive)	0.43 SE	95% CI 6.1-7.8
Motivational interviewing or patient engagement training (e.g. Empathic inquiry training): Mean; 1=Not at all useful; 10=Very useful	7.1 (N=58; 31 didn't receive)	0.30 SE	95% CI 6.5-7.7
Trauma-informed care: Mean; 1=Not at all useful; 10=Very useful	7.6 (N=61; 27 didn't receive)	0.27 SE	95% CI 7.1-8.2
Racial equity and/or cultural competency: Mean; 1=Not at all useful; 10=Very useful	7.8 (N=71; 16 didn't receive)	0.26 SE	95% CI 7.3-8.3
Clinic atmosphere			
My clinic is a place where all employees and patients are treated equitably regardless of race/ethnicity: Mean; 1=Strongly disagree; 5=Strongly agree	4.5	0.10 SE	95% CI 4.3-4.7
Leadership at my clinic is taking active steps to dismantle racial inequity within our organization: Mean; 1=Strongly disagree; 5=Strongly agree	4.1	0.12 SE	95% CI 3.9-4.4
*N= number of respondents; for questions asked on Likert scale, means also provided †Percentage of respondents or standard error (to accompany means) provided ††Fischer's exact §Confidence intervals provided to accompany means			

Appendix Table 2. Demographics of Patients at Two Community Health Centers (CHCs) That Participated in Electronic Health Record (EHR) Data Analyses

Demographics of patients	Site 1 N=8,236	Site 2 N=35,635	
	N (%)	N (%)	p value
Age			
<18	0	10569 (30.7)	
18-44	3837 (46.6)	14907 (43.3)	
45-64	3501 (42.5)	7231 (21.0)	
65	898 (10.9)	1707 (5.0)	<0.001
Sex			
Male	2432 (29.5)	12259 (34.4)	
Female	5803 (70.5)	23376 (65.6)	<0.001
Race/ethnicity			
Non-Hispanic White	912 (11.1)	15277 (42.9)	
Non-Hispanic Black	1737 (21.1)	9497 (26.7)	
Hispanic	4852 (58.9)	1274 (3.6)	
Non-Hispanic Asian	545 (6.6)	8068 (22.6)	
Other/Non-Hispanic multiple races	169 (2.1)	1144 (3.2)	
Declined to answer	20 (0.2)	371 (1.0)	<0.001
Preferred language			
English	5193 (63.7)	18528 (52.1)	
Spanish	2924 (35.9)	8528 (24.0)	
Chinese	5 (0.06)	1553 (4.4)	
Vietnamese	4 (0.05)	1980 (5.6)	
Arabic	3 (0.04)	1806 (5.1)	
Other	19 (0.2)	2824 (8.0)	
Declined to answer	6 (0.07)	338 (1.0)	<0.001