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Social needs screening in emergency medicine: Utilizing an abridged PRAPARE screening tool

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Research Article

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Abstract

Introduction: The Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) is a validated social needs screening tool widely used in primary care but rarely adapted for the emergency department (ED). We evaluated the feasibility of implementing an abridged PRAPARE tool in a high-volume ED using an operational model designed to minimize burden on clinical staff. *Methods:* From October 2021 to October 2023, trained student volunteers administered an 11-item abridged PRAPARE survey to adult ED patients during waiting-room time, parallel to routine clinical workflows. This retrospective quality improvement analysis evaluated deidentified data from these encounters. Items were selected via multidisciplinary consensus based on local resource alignment and analyzed descriptively. *Results:* Of 6,931 patients approached, 683 (9.8%) completed screening. Most identified as non-Hispanic Black (62%) and female (61%). Nearly all (94%) reported at least one unmet social need, and 56% reported three or more. The most common were food insecurity (47%), medication access (39%), and utility insecurity (37%). Substantial proportions also reported transportation barriers (28%), housing instability (27%), unemployment (26%), and feeling unsafe at home (15%). Black patients were overrepresented relative to the ED census (62% vs 40%). Among those with unmet needs, 96% expressed willingness to engage with assistance. *Conclusions:* An abridged PRAPARE tool was successfully implemented using a low-burden, volunteer-driven model and identified a high prevalence of unmet social needs. These findings support streamlined screening delivered outside the clinical workflow and offer operational lessons on volunteer staffing, workflow integration, and referral infrastructure.

Introduction

Social determinants of health (SDOH) – the social and economic conditions shaping how individuals live, work, and age – are increasingly recognized as foundational drivers of health outcomes. Individuals facing unmet needs like food insecurity, housing instability, unemployment, or unsafe living environments suffer higher rates of chronic illness, mental health challenges, and premature mortality [1,2]. The World Health Organization has affirmed that addressing these determinants is essential to achieving equitable health systems [3]. In the United States, people with significant social risk frequently rely on emergency departments (EDs) as their primary point of care, resulting in fragmented services, avoidable utilization, and higher costs [4,5].

The ED is uniquely positioned to identify and help mitigate these upstream risks. Patients presenting to EDs are more likely to confront socioeconomic hardship, lack stable primary care, and encounter systemic barriers to healthcare access [6,7]. Studies document high prevalence of social needs among ED patients – including food insecurity, housing instability, and transportation challenges – all correlating with adverse healthcare usage and outcomes [8]. For instance, food insecurity is independently tied to increased ED visits and hospitalizations [9]. These factors underscore the importance of integrating social needs identification into ED workflows as part of comprehensive, patient-centered care.

Policy shifts are increasingly driving this integration. The Centers for Medicare & Medicaid Services now require hospitals to report on SDOH domains such as housing, food, and transportation through the 2024 Inpatient Quality Reporting Program [10]. The Joint Commission mandates that accredited institutions systematically identify and address patient-level disparities, including social risk factors [11]. The American College of Preventive Medicine advocates for social needs screening only when appropriate referral mechanisms are in place – emphasizing the need for actionable, not merely observational, approaches [12]. Together, these changes elevate SDOH screening from an optional innovation to an expected component of quality clinical care.

A range of screening instruments exist to facilitate social needs identification. The Accountable Health Communities Health-Related Social Needs (AHC-HRSN) tool, developed by CMS, assesses multiple domains and has shown moderate feasibility in ED contexts [13]. The Core 5 screening

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tool offers brevity but sacrifices breadth [14]. In contrast, the PRAPARE tool, established by the National Association of Community Health Centers, offers a comprehensive, 21-item assessment spanning housing, food, employment, stress, and more. It is heavily used in primary care, with proven patient acceptability and utility in intervention planning [1,2].

However, the PRAPARE tool's length poses challenges within the fast-paced ED environment. Evidence shows administrative time constraints, staff capacity, and workflow complexity impede implementation [5,15,16]. Despite this, innovative adaptations show promise. Some EDs have piloted electronic or volunteer-administered tools with or without EHR integration to minimize impact on clinical staff [13,14,17–19]. To enhance feasibility further, several studies have evaluated short-form versions of social needs screening instruments. A shortened, digital variant of a multidomain tool used in maternal health retained sensitivity while reducing respondent burden [20]. Other programs incorporating streamlined questions into EHR pathways demonstrated improved uptake and scalability [21]. Yet, rigorous assessment of abridged PRAPARE tools tailored to ED settings remains scarce, and questions persist regarding their workflow integration and ability to identify actionable needs.

Beyond feasibility, impact remains an underexplored area. Technical briefs and systematic reviews warn that the current literature focuses primarily on feasibility and has limited data on outcomes related to health utilization or patient well-being [22,23]. There is also a lack of validation studies assessing PRAPARE specifically in ED populations [22,24]. These gaps underscore the need for ED-specific research evaluating pragmatically adapted instruments, their ability to identify social risk, the operational models through which they can be deployed, and the actions that follow.

Addressing these gaps, our study describes the feasibility of implementing an 11-item abridged PRAPARE screening process in a high-volume academic ED, using an operational model that minimizes burden on clinical staff while identifying substantial unmet social needs. By focusing on the most prevalent and actionable domains – selected based on local prevalence, resource alignment, and consensus – we aimed to create a streamlined tool suited to ED workflow. We draw on the operational model established by the ParallelED program to efficiently integrate volunteer assistance [25]. Our objectives were to evaluate (1) the feasibility of implementing the abridged PRAPARE screening process using a volunteer-based model operating outside the clinical workflow in a high-volume ED, (2) the prevalence and types of unmet social needs identified, and (3) patient willingness to engage with assistance among those screened.

Materials and methods

Study design and setting

This retrospective quality improvement study was conducted from October 2021 to October 2023 in the ED of a large academic tertiary care medical center in Durham, North Carolina. The ED is a Level I trauma center with an annual census of more than 80,000 visits and serves a socioeconomically and racially diverse patient population. The study leveraged waiting-room time for survey administration to minimize disruption to clinical workflows.

Population

All adult patients (≥18 years) presenting to the ED during volunteer screening shifts were eligible for participation. Exclusion criteria included patients requiring immediate triage for medical instability, those with altered mental status, those who did not speak English or Spanish (due to the absence of validated translated instruments during the study period), and those unable to provide informed consent or complete the survey because of acute illness (e.g., respiratory distress, severe pain, vomiting). Patients were approached in the waiting room by trained student volunteers and invited to participate after providing verbal informed consent.

Survey instrument

The study team adapted the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) survey for use in the ED. The original 21-item tool was shortened to 11 items to improve feasibility in the acute care environment. Items were selected through a consensus-based process involving emergency physicians, social workers, and student volunteers, informed by (1) prevalence of needs identified in prior institutional ED data, (2) alignment with locally available community referral resources, and (3) review of existing short-form social needs instruments in comparable care settings [14,20]. We acknowledge that patient voices were not formally included in the item selection process, a limitation we address in the discussion. The abridged tool was designed for efficient administration under real-world ED time constraints and to cover domains known to be prevalent and actionable in this setting. This study describes the implementation of an adapted instrument rather than a formal validation; psychometric properties such as sensitivity, specificity, and construct validity relative to the full PRAPARE tool were not evaluated, and the abridged tool should not be considered a validated instrument on the basis of these data. The abridged version retained domains addressing housing stability, food insecurity, utilities, transportation, employment, safety, insurance coverage, and stress (Supplement 1). The survey instrument was translated into Spanish and verified by two native-Spanish-speakers.

Survey administration

Surveys were administered verbally by trained undergraduate student volunteers using a model utilized previously by this study group [25]. Student volunteers underwent structured training before data collection. Training included instruction in standardized patient approach, survey administration, confidentiality protections, and accurate documentation of responses. Volunteers were also oriented to available referral resources and taught escalation procedures for urgent safety concerns. Surveys were administered in the ED waiting room during two scheduled 2-hour shifts each day (10:00 AM and 5:00 PM). Participant responses were recorded on paper forms and subsequently entered into a secure REDCap database by the study team. Spanish-speaking volunteers administered the survey to Spanish-speaking patients.

Statistical analysis

Descriptive statistics were used to characterize patient demographics and the prevalence of social needs. Frequencies and proportions were calculated for each survey item. The racial and ethnic distribution of screened patients was compared with the overall ED census to assess representativeness. Formal subgroup or inferential comparisons of need prevalence by age, sex, or race/ethnicity were not performed, as the study was designed as a descriptive quality improvement analysis. Data analysis was conducted using R v.4.2.2 (The R Foundation, Vienna, Austria).

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Ethical considerations

The Duke University School of Medicine Institutional Review Board reviewed the study and deemed it exempt as a quality improvement initiative. Verbal informed consent was obtained from all participants prior to survey administration. All data were de-identified prior to analysis, and procedures were conducted in accordance with institutional standards for confidentiality.

Results

Study population

During the study period, 814 patients initiated the abridged PRAPARE survey. Of these, 683 (83.9%) completed all survey items and were included in the analysis; 131 (16.1%) had incomplete responses and were excluded. A flowchart depicting participant selection from the general ED population is shown in Figure 1.

Among respondents, the majority identified as non-Hispanic Black ($n = 426$, 62.4%), followed by non-Hispanic White ($n = 121$, 17.7%) and Hispanic ($n = 101$, 14.8%). Most participants were female ($n = 419$, 61.3%), with 258 (37.8%) male and 3 (0.4%) non-binary. Participants represented a wide age distribution: <15 years ($n = 1$, 0.1%), 15–25 years ($n = 80$, 11.7%), 26–35 years ($n = 131$, 19.1%), 36–45 years ($n = 116$, 16.9%), 46–55 years ($n = 112$, 16.3%), 56–65 years ($n = 125$, 18.3%), and >65 years ($n = 92$, 13.5%). Insurance coverage was reported by 493 respondents (72.2%): private ($n = 230$, 33.7%), Medicaid ($n = 114$, 16.7%), and Medicare ($n = 153$, 22.4%). One in five respondents ($n = 136$, 19.9%) were uninsured. Compared with the overall ED census, in which Black patients comprised approximately 40% of visits, non-Hispanic Black patients were overrepresented among those screened (62.4%). Complete demographic details are shown in Table 1.

Screening reach and implementation

Across the study period, volunteers approached 6,931 patients during covered shifts, of whom 837 initiated screening. After collapsing duplicates and excluding records with unavailable data or incomplete responses, 683 patients (9.8% of those approached) completed the full abridged survey. Screening was conducted entirely during waiting-room time by trained volunteers, without requiring dedicated time from triage nurses, physicians, or other clinical staff. No adverse events or escalations for acute safety concerns interrupted clinical operations during the study period.

Prevalence of social needs

Nearly all participants ($n = 645$, 94.4%) reported at least one unmet social need. Among these, 360 (55.8%) endorsed three or more concurrent needs, indicating substantial cumulative social burden. The most frequently reported needs included food insecurity ($n = 321$, 47.0%), difficulty affording medications ($n = 267$, 39.1%), and utilities insecurity ($n = 253$, 37.0%). Housing instability was reported by 185 participants (27.1%), unemployment by 177 (25.9%), and transportation barriers by 191 (28.0%). A smaller but important subset ($n = 103$, 15.1%) reported feeling unsafe in their home environment.

Patient willingness to engage with assistance

Of those with identified needs, 619 participants (90.6%) expressed willingness to engage with assistance, 31 (4.5%) declined, and 24 (3.5%) were unsure. The full distribution of identified social needs and patient willingness to engage is presented in Table 2. The high proportion of patients willing to engage indicates that the abridged screening process was well-tolerated when delivered through this volunteer-based model operating outside the clinical workflow.

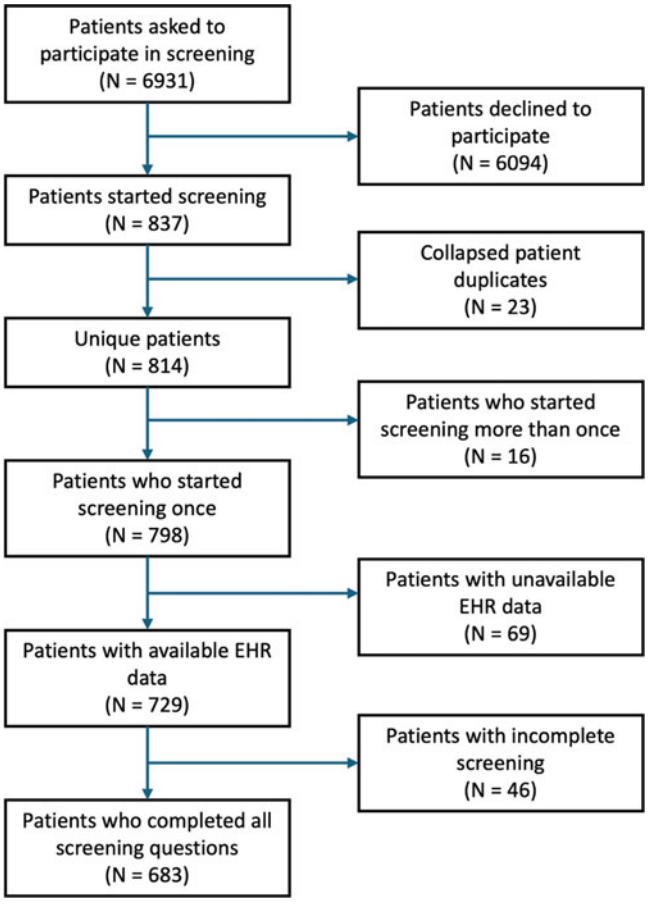


Figure 1. Flowchart depicting selection of study participants from the general patient population. Abbreviations: ED, emergency department; EHR, electronic health record; N, number of patients.

Discussion

This quality improvement study demonstrates the feasibility of implementing an abridged PRAPARE screening process in a high-volume academic ED using a volunteer-driven operational model that runs parallel to, and imposes minimal burden on, clinical staff. Over a two-year period, trained volunteers completed screening with 683 patients entirely during waiting-room time, identifying a high prevalence of unmet social needs and a high degree of patient willingness to engage with assistance. In the sections that follow, we focus on what this experience shows about how to operationalize social needs screening in the ED, addressing the volunteer staffing model, workflow integration, referral infrastructure, scalability, and sustainability, rather than on the prevalence findings alone.

Burden of unmet social need

The population screened carried a high cumulative burden of social need. Nearly all respondents endorsed at least one need, and over half reported three or more, with food insecurity, medication affordability, and utilities insecurity most common. These rates are

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Table 1. Demographic characteristics of patients who completed the PRAPARE screening survey. PRAPARE, Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences; *N*, number; %, percent

Category	*N* (%)
Participants who completed all PRAPARE items	*N* = 683
Age	
<15	1 (0.1%)
15–25	80 (11.7%)
25–35	131 (19.1%)
35–45	116 (16.9%)
45–55	112 (16.3%)
55–65	125 (18.3%)
65+	92 (13.5%)
Race and ethnicity	
American Indian/Alaska native	23 (3.4%)
Asian	16 (2.3%)
Black, Hispanic	8 (1.2%)
Black, non-Hispanic	426 (62.4%)
Hispanic	101 (14.8%)
White, Hispanic	22 (3.2%)
White, non-Hispanic	121 (17.7%)
Sex	
Male	258 (37.8%)
Female	419 (61.3%)
Non-binary	3 (0.4%)
Insurance status	
Private	230 (33.7%)
Medicaid	114 (16.7%)
Medicare	153 (22.4%)
Uninsured	136 (19.9%)

Table 2. Social needs identified by participants who completed the abridged PRAPARE screening survey. PRAPARE, Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences; *N*, number; %, percent

Category	*N* (% of *N* = 683)
Urgent needs	
Yes	211 (30.9%)
No	472 (69.1%)
Type of social need	
Food	319 (46.7%)
Clothing	178 (26.1%)
Childcare	91 (13.3%)
Utilities	254 (37.2%)
Medicine	265 (38.8%)
Phone	129 (18.9%)
Housing	142 (20.8%)
Transportation	66 (9.7%)
Internet	122 (17.9%)
Other	142 (20.8%)
None	62 (9.1%)
Chose not to answer	5 (0.7%)
Interest in assistance with social needs	
Yes	619 (90.6%)
No	31 (4.5%)
Unsure	24 (3.5%)
Chose not to answer	9 (1.3%)

consistent with prior ED studies identifying food and housing as particularly prevalent needs [5,9,14,26], and they exceed national household estimates of approximately 12–15% for food insecurity and 4–5% for unstable housing [23,24]. This gap reflects the concentrated vulnerability of ED populations [2,15]. Non-Hispanic Black patients were overrepresented among those screened relative to the ED census (62% vs 40%), consistent with longstanding structural inequities in housing, employment, and access to care that disproportionately affect Black populations [17–19]. ED-based social needs screening may therefore serve as a critical opportunity for advancing health equity, but only when paired with referral systems that ensure identified needs are addressed [21].

A volunteer-based staffing model

The program relied on trained undergraduate volunteers who administered screening during ED waiting-room time, separate from triage and clinical care. This design addresses the barrier most often cited in ED social needs screening, competing demands on clinician and nursing time [5,7,15,16], by shifting the screening task to a dedicated, low-cost workforce. Three factors were important to the model's viability: structured volunteer training in patient approach and confidentiality, clear escalation procedures for urgent safety concerns, and reliable shift coverage during high-census hours. The approach builds on the ParallelED model previously described by our group [25] and may be feasible for other institutions with access to student or community volunteers, including academic health centers and health professions schools.

Screening reach, workflow integration, and scalability

The principal limitation of the volunteer model was its reach: only 9.8% of approached patients completed screening, a rate well below those reported by programs that embed screening directly into nursing triage or electronic health record (EHR) intake workflows [4,5]. This gap reflects the model's dependence on shift coverage, volunteer availability, and the voluntary, convenience-based nature of participation. For institutions prioritizing population-level screening coverage, embedding brief screening into standard triage or EHR-based intake for every registered patient will achieve substantially greater reach, though at the cost of added clinical staff burden. A hybrid approach may offer the best balance: using EHR-based prompts to achieve broad reach for a small set of high-priority items, while deploying volunteers or navigators to conduct deeper assessment and warm hand-offs for patients who screen positive. The abridged, 11-item instrument described here could serve as the front-end trigger in such a tiered model, given its brevity and coverage of the most actionable domains.

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Referral infrastructure and sustainability

Screening is only the first step, and its value depends on the capacity to act on the needs it identifies. The high proportion of patients willing to engage with assistance (96%) reflects a level of demand that a screening program must be prepared to meet. As the American College of Preventive Medicine notes, screening without actionable follow-up risks frustrating patients and staff [12]. Sustainable programs require partnerships with community-based organizations, embedded care coordinators or community health workers, closed-loop referral platforms, and dedicated funding [27,28]. Prior work supports pairing ED screening with specific interventions, such as housing navigation and ED-based case management for frequent utilizers [29,30]. Institutions considering adoption should plan and budget for referral capacity before launching screening and align program design with CMS and Joint Commission expectations for actionable SDOH screening [10,11].

Interpreting patient willingness

The high proportion of patients willing to engage with assistance is consistent with studies demonstrating that ED patients find social risk questions relevant and appropriate, even during the COVID-19 pandemic [9,22]. We interpret this measure as reflecting willingness to engage rather than formal acceptability, satisfaction, or perceived appropriateness, which we did not assess. Willingness to engage is also distinct from actual receipt of services or improved outcomes, which this study did not measure. Closing the gap between expressed willingness and realized service linkage remains a critical priority for future implementation research.

Implications for practice and policy

These operational findings have several practical implications. For clinical leaders, they show that social needs screening can be started quickly and at low cost through a volunteer-based model that operates outside the clinical workflow, offering a practical entry point for institutions beginning to address CMS and Joint Commission mandates [10,11]. For those seeking population-level coverage, they clarify the trade-off between the broader reach of workflow-embedded screening and the lower burden of a volunteer model, and suggest a role for tiered or hybrid designs. For policymakers and funders, they indicate that screening mandates must be paired with investment in referral and navigation capacity if identification is to lead to assistance. Future work should prioritize EHR integration to embed brief front-end screening into triage workflows, prospective evaluation of referral pathways and service-linkage rates, and longitudinal assessment of whether identifying social needs leads to measurable improvements in care utilization, linkage, and patient-reported outcomes, particularly in underserved populations.

Limitations

Limitations include the single-center design and use of convenience sampling, which may limit generalizability. The volunteer-dependent model reached fewer than 10% of approached patients, further constraining conclusions about population-level coverage. Exclusion of non-English speakers likely underestimated unmet needs among immigrant and marginalized populations. Responses were self-reported and subject to recall or social desirability bias. We also did not track referral outcomes, precluding conclusions about the effectiveness of screening in reducing utilization or improving health. Additionally, abridgment of the PRAPARE instrument excluded some domains (e.g., education, social isolation), potentially underestimating total social burden, and the abridged tool was not formally validated. As noted, patients were not included in the item selection process, which may have resulted in omission of domains particularly salient to this population. Future efforts should incorporate community-engaged and patient-centered approaches to instrument refinement.

In conclusion, this quality improvement study shows that an abridged PRAPARE screening process can be implemented in a high-volume ED through a low-burden, volunteer-based model, and that doing so identifies a substantial burden of unmet social need and a high degree of patient willingness to engage with assistance. The main contribution of this work is operational: it shows how such a program can be staffed, run alongside existing clinical workflows, and connected to referral resources, and where its limits lie, for institutions working to establish and sustain social needs screening in emergency care. Making ED-based screening effective will require pairing efficient identification with the referral and navigation capacity needed to turn patient willingness into actual assistance.

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Author contributions. **John Purakal:** Conceptualization, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing; **Julia Mook:** Conceptualization, Data curation, Investigation, Methodology, Project administration, Visualization, Writing – review & editing; **James Zheng:** Formal analysis, Methodology, Writing – review & editing; **Raquel Sasha Garcia:** Visualization, Writing – original draft, Writing – review & editing; **Gene Moon:** Data curation, Investigation, Writing – review & editing; **Matthew Yuan:** Data curation, Investigation, Writing – review & editing.

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