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Screening for health-related social needs in the emergency department: Adaptability and fidelity during the COVID-19 pandemic

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ABSTRACT

Background and objectives: We sought to evaluate a screening and referral program for health-related social needs (HRSN) in our ED. Our goals were to (1) quantify successful screenings prior to and during the initial peak of the pandemic, and (2) describe the HRSNs identified.
Methods: We performed an observational analysis of ED-based screening for HRSN in Medicare and Medicaid patients at our large urban safety-net hospital. Screening was performed by patient navigators utilizing the ten question, validated Accountable Health Communities (AHC) Screening Tool, which screens for food insecurity, housing instability, transportation needs and utility assistance and interpersonal safety. Patients who screened positive for HRSN were provided with handouts listing community resources. For patients with two or more self-reported ED visits in the last 12 months and any identified HRSN, ongoing navigation after discharge was provided utilizing community resource referrals. During the pre-pandemic period from November 1, 2019 – January 31, 2020, screening occurred in-person. Screening during the pandemic from March 1, 2020 – May 31, 2020 occurred remotely via telephone. Descriptive statistics including frequency rates and percentages were calculated. Successful screening was defined as completing the screening survey with a navigator and being triaged to either no assistance, resource handouts, or navigation services.
Results: Among the adult and pediatric patients screened for HRSN, 158 (16%) qualified for community resource handouts and 440 (44.4%) qualified for patient navigator services. The proportion of patients receiving both resources and care navigation remained similar in the pre- and post-periods of the study, at 227 (45%) and 213 (43.9%) respectively. However, the proportion of ED patients with a HRSN need doubled from 56 (11.1%) in the pre-period to 102 (21%) in the post-period. Food insecurity was the most identified HRSN in both the pre-pandemic period (27.3%) and during the pandemic (35.8%).
Conclusion: We found that remote HRSN screening for ED patients during the COVID-19 pandemic resulted in similar proportions of successfully completed screenings compared to pre-pandemic efforts. This demonstrates the feasibility of utilizing alternative methods of screening and referral to community resources from the ED, which could facilitate this type of intervention in other EDs. During the pandemic HRSN increased, likely reflecting the economic impact of the pandemic.

Healthcare systems have been called upon to identify and address social determinants of health (SDOH) to improve patient care, enhance population health, and limit healthcare costs [1]. The Centers for Medicare and Medicaid Services Accountable Health Communities (AHC) Model recommends screening for health-related social needs (HRSN) to determine whether systematically addressing unmet social needs can improve health outcomes and reduce healthcare utilization costs, such as frequent Emergency Department (ED) visits [2]. The ED is a critical access point from which marginalized populations can successfully gain access to the healthcare system and other resources [3]. As such, the ED is uniquely well positioned to screen and refer large numbers of patients with HRSN, with the potential to have a significant impact on their quality of life, healthcare utilization, and health outcomes.

Limited data exist on the most effective modalities for HRSN screening and resource referral in the ED. [1,4-6] The potential impact of screening for HRSN in the ED became even more readily apparent during the COVID-19 pandemic. As frontline providers during the pandemic, we witnessed first-hand the close relationship between SDOH and COVID-19 infection. The pandemic highlighted and exacerbated

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the already significant health disparities impacting communities [7,8]. It also fueled a movement to incorporate SDOH into health policy and screening into the delivery of health care [7-9]. However, little is known about the real world impact of incorporating HRSN screening and interventions in the ED during the COVID-19 pandemic. The primary objective of this study was to quantify successful HRSN screenings in a busy urban ED prior to and during the initial peak of the pandemic. The secondary objective was to describe HRSNs identified through ED-based screening and patient navigation services provided to patients before and during the initial peak of the pandemic.

We conducted an observational study of ED-based screening for SDOH before and during the initial months of the COVID-19 pandemic at an urban safety net institution with a dedicated commitment to care of underserved and at-risk populations. It is a 533-bed hospital with over 100,000 adult and pediatric ED visits annually. The local Institutional Review Board approved the study.

Adult and pediatric ED patients were eligible for HRSN screening only if they were Medicare or Medicaid recipients as this project funded was funded by the Centers for Medicare and Medicaid Services. The pre-period included November 1, 2019 – January 31, 2020, and the post-period included March 1, 2020 – May 31, 2020. Two 3-month periods were identified to provide a balanced evaluation of the ED before and during the initial peak of the COVID-19 pandemic.

During the pre-period of the study, prior to the COVID-19 pandemic, patient navigators completed HRSN screening in the ED, from 2 pm to 10 pm during our typical peak volumes. The navigators met in-person with patients to complete the HRSN questionnaire. HRSN screening was performed utilizing the ten question, validated AHC Screening Tool, which includes questions on food security, housing stability, transportation needs, utility assistance, and interpersonal safety [2]. Patients who screened positive for HRSN were provided with handouts listing resources address their needs. For patients with two or more self-reported ED visits in the last 12 months and any identified HRSN, community resource referrals were provided, and one-on-one close follow up via telephone, text or email with the navigator. Navigators attempted to reach the patient three times after discharge. Navigation for all identified needs was available for up to one year from the ED visit until the need was either resolved (need was met, successful link to community service provider who would be able to address the need within one year, or the community service was unavailable or the waitlist was longer than one year) or unresolved (unable to reach the beneficiary on three attempts or the beneficiary opted out of navigation).

Due to the COVID-19 pandemic, in the post-period of the study, the approach to HRSN screening was modified. HRSN screening was completed remotely with the screening staff contacting the patients through telephone calls to the patients' ED examination rooms from noon to 8 pm. Patients who screened positive for HRSN were provided with directed resources electronically through text, email or the messaging functionality in the electronic health record (EHR). For patients with two or more self-reported ED visits in the last 12 months and any HRSN, community resource referrals were provided, and one-on-one close follow up via telephone, text or email with the navigator. The navigation process was the same in the post-period as in the pre-period.

Descriptive statistics including frequency rates and percentages were calculated. All analyses were performed and tabulated using SAS Version 9.4 (SAS Institute Inc., Cary, North Carolina).

In the pre-period (11/1/2019–1/1/2020), 22,650 patients were seen in the ED, and in the post-period (3/1/2020–5/31/2020), 15,611 patients were seen in the ED. (Table 1). The major factor in decreasing ED volume between the pre-period and post-period was the pediatric ED volume decreased by 66% in the post-period compared to the pre-period. Emergency Severity Index (ESI) and length of stay were similar in the pre-period and post-period although the percentage of patients requiring admission increased from 17% to 22%.

Table 1
Emergency department demographics and clinical variables

Variable	Pre-Period (n = 22,650)	Post-Period (n = 15,611)
Median Age in Years (IQR)	31 (13, 51)	38 (23, 54)
Female Gender (%)	10,195 (45)	6473 (41)
Race/Ethnicity		
American Indian (%)	252 (1)	248 (2)
Asian (%)	496 (2)	286 (2)
African American (%)	3221 (14)	2210 (14)
White (%)	16,059 (71)	10,796 (69)
Other (%)	2317 (10)	1746 (11)
Not Answered (%)	305 (2)	325 (2)
Ethnicity		
Hispanic (%)	10,521 (46)	6909 (44)
Insurance		
Medicaid/Medicare (%)	16,674 (74)	11,309 (73)
Non-Government Payor (%)	3184 (14)	2416 (15)
None (%)	2792 (12)	1886 (12)
Median Emergency Severity Index or ESI (IQR)	3 (3,3)	3 (3, 3)
Median ED Length of Stay in Minutes (IQR)	212 (120, 352)	218 (125, 347)
Disposition		
Admitted (%)	3942 (17)	3408 (22)
Discharged (%)	17,869 (79)	11,593 (74)
Left Against Medical Advice (%)	391 (2)	288 (2)
Transferred (%)	448 (2)	322 (2)

Table 2
Demographics and disposition of patient screened for social determinants of health

Variable	Pre-Period (n = 666)	Post-Period (n = 592)
Median Age in Years (IQR)	26 (13.5, 50)	38 (24, 94)
Female Gender (%)	376 (56)	340 (57)
Race/Ethnicity		
American Indian (%)	40 (6)	16 (3)
Asian (%)	10 (2)	5 (1)
African American (%)	189 (29)	104 (18)
White (%)	288 (43)	280 (47)
Other (%)	88 (13)	98 (16)
Not Answered (%)	131 (20)	89 (15)
Ethnicity		
Hispanic	286 (43)	284 (48)
Disposition		
Admitted	101 (15)	113 (18)
Discharged	556 (83)	475 (80)
Left Against Medical Advice	4 (1)	2 (1)
Transferred	5 (1)	2 (1)

In the pre-period, 666 patients were screened, and 592 patients were screened in the post-period. (Table 2) Patients screened for SDOH were more likely to be female, were more likely to be African American and were more likely to be discharged compared to the general ED population. An equivalent number of patients were screened in the pre- and post-period despite changes in screening modality and a reduction in ED patient volume during the initial peak of the COVID19 pandemic. No patient screened in the pre-period was also screened in the post-period.

Among the adult and pediatric patients screened for HRSN, 158 (16%) qualified for community resource referral and 440 (44.4%) qualified for resources and patient navigator services.(Table 3) The proportion of patients receiving both resources and care navigation remained similar in the pre- and post-periods of the study, at 227 (45%) and 213 (43.9%) respectively. However, the proportion of ED patients with a HRSN need doubled from 56 (11.1%) in the pre-period to 102 (21%) in the post-period. The proportion of individuals identified as having a need for assistance with food, housing, and utility services all increased from the pre- to the post-period. The need for assistance with interpersonal safety and transportation decreased during the post-period.

Our study demonstrates the feasibility of utilizing alternative methods of screening in the ED to successfully identify HRSN during the COVID-19 pandemic. With the rise in COVID-19 cases in March

Table 3
Health related social needs screening results during study period

Variable	Pre-Period (n = 666)	Post-Period (n = 592)	Both Periods (*n* = 1258)
Food Insecurity			
Valid N (% Response)	655 (98.3%) (95% CI: 97.1, 99.2)	579 (97.8%) (95% CI: 96.2, 98.8)	1234 (98.1%) (95% CI: 97.2, 98.8)
Positive	179 (27.3%) (95% CI: 24.0, 30.9)	207 (35.8%) (95% CI: 31.8, 39.8)	386 (31.3%) (95% CI: 28.7, 34.0)
Negative	476 (72.7%) (95% CI: 69.1, 76.1)	372 (64.2%) (95% CI: 60.1, 68.2)	848 (68.7%) (95% CI: 66.1, 71.3)
Interpersonal Safety			
Valid N (% Response)	476 (71.5%) (95% CI: 67.9, 74.9)	474 (80.1%) (95% CI: 76.6, 83.2)	950 (75.5%) (95% CI: 73.0, 77.9)
Positive	476 (100.0%) (95% CI: 99.2, 100)	383 (80.8%) (95% CI: 77.0,84.2)	859 (90.4%) (95% CI: 88.4, 92.2)
Negative	0 (0.0%) (95% CI: 0, 0.01)	91 (19.2%) (95% CI: 15.8, 23.0)	91 (9.6%) (95% CI: 7.8, 11.6)
Housing Instability			
Valid N (% Response)	657 (98.6%) (95% CI: 97.5, 99.4)	581 (98.1%) (95% CI: 96.7, 99.1)	1238 (98.4%) (95% CI: 97.6, 99.0)
Positive	93 (14.2%) (95% CI: 11.6, 17.1)	100 (17.2%) (95% CI: 14.2, 20.5)	193 (15.6%) (95% CI: 13.6, 17.7)
Negative	564 (85.8%) (95% CI: 82.9, 88.4)	481 (82.8%) (95% CI: 79.5, 85.8)	1045 (84.4%) (95% CI: 82.3, 86.4)
Transportation Needs			
Valid N (% Response)	655 (98.3%) (95% CI: 97.1, 99.2)	578 (97.6%) (95% CI: 96.1, 98.7)	1233 (98.0%) (95% CI: 97.1, 98.7)
Positive	153 (23.4%) (95% CI: 20.2, 26.8)	112 (19.4%) (95% CI: 16.2, 22.8)	265 (21.5%) (95% CI: 19.2, 23.9)
Negative	502 (76.6%) (95% CI: 73.2, 79.8)	466 (80.6%) (95% CI: 73.2, 83.8)	968 (78.5%) (95% CI: 76.1, 80.8)
Utility Assistance			
Valid N (% Response)	637 (95.6%) (95% CI: 93.8, 97.1)	542 (91.6%) (95% CI: 89.0, 93.7)	1179 (93.7%) (95% CI: 92.2, 95.0)
Positive	66 (10.4%) (95% CI: 8.1, 14.2)	88 (16.2%) (95% CI: 13.2, 19.6)	154 (13.1%) (95% CI: 11.2, 15.1)
Negative	571 (89.6%) (95% CI: 87.0, 91.9)	454 (83.8%) (95% CI: 80.4, 86.8)	1025 (86.9%) (95% CI: 84.9, 88.8)
Qualified Group			
Low - No Resources or Navigation	222 (44.0%) (95% CI: 39.6, 48.4)	170 (35.1%) (95% CI: 30.8, 39.5)	392 (39.6%) (95% CI: 36.5, 42.7)
Medium - Resources Only	56 (11.1%) (95% CI: 8.5, 14.2)	102 (21.0%) (95% CI: 17.5, 24.9)	158 (16.0%) (95% CI: 13.7, 18.4)
High - Navigation and Resource	227 (45.0%) (95% CI: 40.6, 49.4)	213 (43.9%) (95% CI: 39.5, 48.6)	440 (44.4%) (95% CI: 41.3, 47.6)

2020, and to minimize navigator exposure to the virus and adhere to social distancing requirements, in-person HRSN screening was halted. The program was adapted by incorporating HRSN screening of patients via telephone in their examination rooms. Given a decrease in overall ED patient volumes during the COVID19 pandemic and the difficulties inherent to telephone screening, there was concern that the program may be less effective. Concurrently, with the economic downturn related to COVID-19, there was an anticipation of an increase in unmet social needs among ED patients. In this observational study, we demonstrate the adaptability and fidelity of the HRSN screening and care navigation program.

Despite the limitations of the COVID-19 pandemic, and an approximate 30% reduction in our ED patient volumes, we demonstrate that our HRSN screening program was able to adapt and identified similar numbers of high-need patients during the post-period. We were still able to successfully screen patients in the ED for HRSN despite the limitations associated with the COVID-19 restrictions. Among patients who were screened, there was an increase in the proportion of patients who screened positive for food insecurity, housing instability, and utility needs. The number of screened patients who qualified for community resource referral nearly doubled. We suspect this may be due to income loss and housing insecurity caused by the pandemic and recession. Frequent ED visitors were still presenting for care, and that more of them were screening positive for HRSNs. Fewer patients were requesting assistance with transportation, which could be related to new unemployment, limited travel during the lockdowns, and reduced numbers of in-person outpatient clinic visits. Given limitations on the navigators' ability to identify patients for screening during the pandemic, they were still able to do so effectively, delivering needed services to patients with HRSNs while successfully working remotely through the EHR.

There are a several limitations to the study. It was conducted at a single center which may limit generalizability to other health care settings. The study included a convenience sample based on ED patients who presented during specific times of day and consented to screening which may not represent all aspects of our patient population. The pre- and post- periods occurred during two different seasons, so we are unable to control for the potential confounders of seasonal changes in housing, work and other factors. Although LOS and ESI were equivalent, patients in the post-period may have been sicker than the pre-period given the higher percentage requiring admission. Gender and race differences in screened patients from general ED patients may be due to the inclusion criteria of Medicaid or Medicare insurance for screening eligibility. The higher discharge percentage in screened patients suggest lower acuity but this lower acuity patient population was likely more available and able to speak with a navigator compared to sicker patients undergoing more extensive medical evaluation. The study was a retrospective analysis of data entered into the EHR in real time about individual patients, which may have been incomplete for some subjects based upon their answers or ability to answer.

Our study demonstrates that remote HRSN screening and service delivery for ED patients during the COVID-19 pandemic resulted in similar proportions of successfully completed screens and services delivered compared to pre-pandemic efforts. Further evaluation of ED-based HRSN screening modalities is necessary to build a strong body of scientific evidence to effectively implement screening programs and interventions.

Declaration of interests

The following authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The following authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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