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Social risk screening and response equity: Assessment by race, ethnicity, and language in CHCs

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Abstract

Introduction: Little has previously been reported about the implementation of social risk screening across racial / ethnic / language (REL) groups. To address this knowledge gap, the associations between REL, social risk screening, and patient-reported social risks were examined among adult patients at community health centers (CHCs).

Methods: Patient- and encounter-level data from 2016–2020 from 651 CHCs in 21 U.S. states were used; data were extracted from a shared Epic© electronic health record (EHR) and analyzed between December 2020 and February 2022. In adjusted logistic regression analyses stratified by language, robust sandwich variance standard error estimators were applied with clustering on patient's primary care facility.

Results: Social risk screening occurred at 30% of health centers; 11% of eligible adult patients were screened. Screening and reported needs varied significantly by REL. Black Hispanic and Black non-Hispanic patients were approximately twice as likely to be screened, and Hispanic White patients were 28% less likely to be screened, compared to non-Hispanic White patients. Hispanic Black patients were 87% less likely to report social risks compared to non-Hispanic White patients. Among patients who preferred a language other than English or Spanish, Black Hispanic patients were 90% less likely to report social needs compared to non-Hispanic White patients.

Conclusions: Social risk screening documentation and patient reports of social risks differed by REL in CHCs. Though social care initiatives are intended to promote health equity, inequitable screening practices could inadvertently undermine this goal. Future implementation research should explore strategies for equitable screening and related interventions.

Keywords

Social risk screening; social determinants of health (SDH); race / ethnicity / language (REL); community health centers; equity

Introduction

Social risks, also called adverse social determinants of health, impact individual and population health outcomes.[1,2,3] These risks include but are not limited to food insecurity, transportation barriers, housing insecurity, racial discrimination, low education, and underemployment. Minoritized communities are disproportionately impacted by social risks as a result of historical and ongoing structural inequities.[4–9] National initiatives focused on improving healthcare quality and health equity have emphasized the need to both identify and respond to patients' social risks in the context of clinical care.[10,11] As a result, many clinical settings have launched efforts to more systematically screen for social risks and document reported risks in the electronic health record (EHR).[12–16,2,17,18] Not all of these efforts include population-wide screening; sometimes clinical teams elect to screen select groups defined by factors such as age, insurance, or diagnosis. These data are usually collected at the point of care by a range of staff during registration, rooming, or care management following a variety of workflows, the specifics of which are beyond the scope of this study. Little research has examined how social risk screening is distributed across racial / ethnic / language (REL) groups regardless of target population or workflow.[13,17,19]

To the extent that social risk screening and documentation informs subsequent interventions (e.g., social service referrals and clinical care decisions), differences in screening rates across REL groups may have health equity implications. This is particularly relevant given the growing number of state and federal initiatives that prioritize care management and

clinical-community linkage strategies to address patients' social risks.[18,20–26] This study examined associations between REL, social risk screening, and patient-reported social risks to assess the distribution and likelihood of screening and reported risks among all community health center (CHC) adult patients.

Methods

Data in these analyses are from the Accelerating Data Value Across a National Community Health Center (ADVANCE) PCORNet Clinical Research Network (CRN).[27] ADVANCE data are extracted from discrete EHR data fields from an instance of the Epic EHR that is shared by >2200 clinic sites located around the U.S., and managed by OCHIN, Inc., (not an acronym) a non-profit health information technology provider. Documentation of patient-reported social risks became available in this EHR in June 2016. This study included OCHIN clinics that ever documented social risks related to financial resource strain (FRS) (child care needs, financial strain, food insecurity, health insurance costs, medical costs, transportation access, or utilities insecurity) prior to August 2020, totaling 651 clinics in 21 states. Analyses used patient- and encounter-level data from June 2016-July 2020. Data were analyzed between December 2020 and February 2022. Of note, 19 included sites received social risk screening implementation support prior to August 2020 as part of a study.[27]

Study Sample

Analyses were limited to adults aged 18 and older with at least one ambulatory visit since June 2016 at an included CHC. After excluding patients missing EHR values for sex (n=433) or preferred language (n=18,407), the sample included 1,551,102 adult patients.

Measures

Outcome measures were extracted from discrete EHR data fields and included two binary measures indicating: 1) whether the patient was ever screened for FRS during the study period (repeat screening was not considered); and 2) among those screened, whether the patient had a documented self-reported need in any FRS domain.

Race and ethnicity[28,29] are data fields in the EHR that are intended to be based on patient self-report. They were used to create the main independent variable which consisted of seven groups: three in which the patient did not self-identify with Hispanic ethnicity and reported White, Black, or other race (non-Hispanic White, non-Hispanic Black, and non-Hispanic other race); three in which patients identified as Hispanic and with a race (Hispanic White, Hispanic Black, Hispanic other race); and one for which there was no data for either the Hispanic indicator or categorical race reported as Race / Ethnicity Unknown. ―Other race‖ reflects the grouping of racial / ethnic categories with smaller samples as captured in the OCHIN database for the purposes of this analysis.[28] Groups classified as Other race identified with either American Indian / Alaska Native, Asian, Native Hawaiian / Pacific Islander, or multiple races.

To account for potential confounding, patient-level variables were included as covariates for preferred language (English, Spanish, other), sex as documented in the EHR, age group (age 18–39, 40–64, 65+ years), insurance type at last encounter (private, public, uninsured), last

recorded federal poverty level (>200% FPL, <=200% FPL, not documented), total number of visits in the study period, and presence of a documented cardiometabolic disease in the problem list (diabetes mellitus, hypertension, dyslipidemia, or obesity), per International Classification of Disease 9 & 10 codes (Appendix). Last, an indicator variable was included noting whether the patient's clinic had received social risk screening implementation support in a prior study.

Statistical Analysis

Patient characteristics were described overall and by race / ethnicity groups. Multivariable logistic regression with indicators for race / ethnicity groups and all listed covariates was conducted to assess differences in the association between race / ethnicity and social risk screening. Then, among patients ever screened for social risk, the same modelling structure was used to evaluate the likelihood of having a documented social risk need, again by race / ethnicity group. Finally, both analyses were repeated stratified by patient's preferred spoken language. For all models, to account for clustering of patients within clinics, a robust sandwich variance standard error estimator was utilized with clustering on patient's most frequented facility. Statistical testing was two-sided with a set 5% type I error and conducted using Stata 15; odds ratios (ORs) and 95% confidence intervals (CIs) were reported for all analyses. The largest sample population, non-Hispanic White adults, was the referent group. This study was approved by the Kaiser Permanente Northwest Institutional Review Board.

Results

Table 1 shows the characteristics of patients included in these analyses (N=1,551,102). Approximately one-fourth (23%) were Hispanic, 17% non-Hispanic Black, 7% non-Hispanic other race, 39% non-Hispanic White, and 14% race / ethnicity unknown. Among Hispanic persons, 92% were Hispanic White, 5% Hispanic Black, and 4% Hispanic other race. Preferred language was English for 74% of the patients while 19% preferred Spanish and 7% preferred a language other than English or Spanish; this included seventy-four additional languages. Two percent of the Spanish language-speaking patients in this sample did not have Hispanic ethnicity documented and 29% had an unknown race / ethnicity.

More than half (57%) were female (based on sex as documented in the EHR). About half (45%) were aged 18–39 years old and 42% aged 40–64. The majority (56%) had public insurance and a quarter (26%) were uninsured. Three quarters of the sample (75%) had household incomes below 200% of the federal poverty level. Chronic disease was prevalent (43%), including diabetes (13%), hypertension (26%), dyslipidemia (22%), and obesity (15%). Nearly half (50%) had nine or more medical visits within the four-year observation period.

Table 2 shows that 164,586 (11%) of patients in the study population had been screened for social risks in the analysis period. Social risk screening by race / ethnicity identified that Black patients—Hispanic and non-Hispanic—were more likely to be screened compared to non-Hispanic White patients (Hispanic Black OR: 2.26 [95% CI1.64–3.11]; non-Hispanic Black OR: 1.49 [95% CI 1.11–1.99]). Hispanic White patients were nearly 30% less likely to be screened than non-Hispanic Whites (Hispanic White OR: 0.72 [95% CI 0.57–0.92]).

Social risk screening by language indicated that, among patients who prefer English, Black patients (Hispanic-Black OR: 1.82 [95% CI: 1.31–2.54]; non-Hispanic-Black OR: 1.51 [95% CI: 1.13–2.03]) were more likely to be screened while non-Hispanic patients of other race and Hispanic White patients were less likely to be screened (Non-Hispanic Other OR 0.76 [95% CI 0.61–0.95]; Hispanic White OR: 0.69 [95% CI 0.54–0.89]) compared to non-Hispanic White patients (Table 2). Among patients who prefer Spanish, patients of other race (Hispanic Other OR: 1.86 [95% CI 1.23–2. 81]; non-Hispanic Other OR: 2.04 [95% CI 1.23–2.81]) and Black patients (Hispanic Black OR: 2.92 [95% CI: 2.02–4.22]; non-Hispanic Black OR: 2.14 [95% CI 1.42–3.23]) were respectively 2- and 3-fold more likely to be screened compared to non-Hispanic White patients. There were no significant differences in likelihood of being screened by race / ethnicity among patients who preferred a language other than English or Spanish.

Documented social risks by race / ethnicity showed that, among those screened (n=164,586), differences in likelihood of reporting social risks were observed across racial / ethnic groups. Table 2 shows the adjusted odds ratios of patients ever screened by REL and, among those screened, the adjusted odds of reporting a social risk factor by REL. Hispanic Black patients were nearly 90% less likely to report a social risk factor compared to non-Hispanic White patients (Hispanic Black OR: 0.13 [95% CI 0.08–0.19]). Hispanic patients of other race (Hispanic Other Race OR 0.50 [95% CI 0.37–0.67]) and patients with unknown race/ ethnicity (Unknown Race / Ethnicity OR: 0.52 [95% CI 0.40–0.67]) were also less likely to report social risk factors.

Documented social risks by language indicated that, among patients screened for social risks who prefer English (n=125,467), all Hispanic patients and patients with race / ethnicity unknown were less likely to have a documented social risk compared to non-Hispanic Whites (Hispanic White OR 0.76 [95% CI 0.61–0.95]; Hispanic Black OR: 0.18 [95% CI 0.56–0.98]; Hispanic other race OR: 0.74 [95% CI 0.56–0.98]; race / ethnicity unknown OR: 0.54 [95% CI 0.41–0.70]). Among patients screened for social risks who prefer Spanish language (n=26,689), Hispanic Black, Hispanic patients of other race, and patients with race / ethnicity unknown were less likely (Hispanic Black OR: 0.11 [95% CI 0.06–0.18]; Hispanic patients of Other Race OR: 0.40 [95% CI 0.25–0.65]; Unknown Race/Ethnicity OR: 0.57 [95% CI 0.38–0.87] than non-Hispanic White patients (who also prefer Spanish language) to report a social risk factor (Table 2). Among those who prefer a language other than English or Spanish (n=12,430), Hispanic Black patients and patients with race / ethnicity unknown were less likely (Hispanic Black OR: 0.10 [95% CI 0.01–0.78]; No Racial Information OR: 0.60 [95% CI 0.40–0.89]) to have a documented social risk compared to non-Hispanic Whites (Table 2).

Discussion

In 2018, annual universal social risk screening became a requirement for some Medicaid ACOs and included in Health Resources and Services Administration guidelines for CHCs[30]. A growing number of state and federal quality measures also encourage screening for social risks.[16,18,22,31–39] For the CHCs in this study, social risk screening tools were available in the EHR since 2016. Prior research on adoption of social risk screening found

that screening is higher in federally-qualified health centers than other settings;[16,40] in the network of CHCs from which the study sample was identified, 30% of facilities conducted any screening prior to August 2020, but only 11% of adult patients were screened.

In the study sample, social screening and reports of social risks differed across REL groups. While the proportion of those screened is far smaller than the total study sample, absolute sample sizes of those screened are still substantial enough that the related confidence intervals are narrow and appear stable. Black patients (Hispanic and non-Hispanic, English-speaking and Spanish preferred), and patients of other race who prefer Spanish (Hispanic and non-Hispanic) were the most likely to be screened. Given that Medicaid reform pilots (e.g., ACOs) and quality improvement requirements have been key drivers for screening implementation, it is unlikely that these differences reflect population differences among screening adopters. Both rural and urban health centers and health centers from a wide range of states and population distributions were included in the reform pilots and screening was a requirement among them all. Rather, since CHCs have limited staff and those staff face many competing priorities, screening patterns may reflect team efforts to ensure patients considered at greatest risk are screened. This may unintentionally lead to systematic exclusion of some patient groups.[41] More standardization in social risk screening and screening workflows to include tailored REL approaches will be needed to maximize reach and avoid these potential adverse consequences.

The differences in prevalence of reported social risks across REL groups are also notable. Patients of Hispanic Black, Hispanic other race identity, and patients who prefer Spanish were less likely to report a social risk than other groups. Though prior research indicates that overall patients find social risk screening acceptable in health care settings,[20,21,42] little is known about whether acceptability of screening and disclosure of social risks varies by REL.[43–47] It is possible that during this study period, fear associated with the political climate[48–50] may have differentially impacted the willingness of some groups (e.g. immigrant and BIPOC populations) to report social risks.[51,52] Prior research suggests that patients may be uncomfortable reporting social risks because of potential negative consequences, e.g., being reported to child protective services for disclosing food insecurity or having benefits reduced as a result of interventions to increase income sources.[51] To reduce these barriers, health centers may need to better articulate the rationale for social risk screening with both staff and patients in clinical settings and implement more culturally and linguistically-tailored social risk screening approaches, including related to explaining data confidentiality practices.[53] Though many CHCs already champion patient-centered, trauma-informed, and language-concordant care,[54–56] it may help to consider ways to explicitly connect social risk screening with these equity-oriented practices.

Language may help explain differences in screening and can be informative above and beyond analyses by racial / ethnic groupings. This may be particularly important among groups for whom reporting race / ethnicity using standard categorizations may not be common or representative. In the results, for instance, Spanish language-preferred non-Hispanic Black patients were both more likely to be screened and less likely to report risks. While only a relatively small segment of this study sample would have been misclassified without the inclusion of language in this example, language may similarly help

to identify segments of the population that would otherwise be missed by racial and ethnic categorization alone. Additionally, inclusion of language may help to identify patients who would benefit from tailored screening approaches and interventions related to reported risks. Future work with diverse patient populations should explore both likelihood of screening and interest in social needs assistance by language as well as the kinds of supports CHCs will need to improve language-related disparities.

Limitations

Study findings should be considered in light of several limitations. First, the study used cross-sectional data. It is possible that social risk screening documentation and social needs reported may change over time. Second, it was beyond the study scope to examine screening patterns within individual health centers. Third, though REL data are less likely to fluctuate over time, REL documentation in the EHR may be incomplete or inaccurate.[57,58] The findings are limited by the accuracy and completeness of these data. Though race / ethnicity in the EHR is intended to document patient self-reported data, in reality it is often ═assigned' by a staff member due to the complexities of asking for the information.[57] Healthcare workers may be inadequately trained and feel uncomfortable collecting these data.[59–61] Patients asked to self-identify race / ethnicity may be confused, uncomfortable or perceive the question as racist. As a result, despite the importance of REL data for assessing equity in care delivery, they often reflect substantial missing data and poor standardization.[62–67] A 2019 study found that among 160 million patient health records from a national hospital database, information on race or ethnicity was unknown for 75%, and in state-level EHR data, for 57%.[68] Since CHCs are required to document REL for federal reporting, the dataset in this analyses contains more complete race / ethnicity data than that available from other settings, but all CHCs face data collection challenges and there continue to be missing data. The Unknown Race / Ethnicity category included in this analysis may represent a racially and ethnically heterogenous group with variable social needs screening and response rates. The size of this group reflects the complexity of collecting race / ethnicity variables in resource limited CHC settings. The next phase of Medicaid Accountable Care Organizations as defined by Waiver 1115 initiatives will require increased race / ethnicity data collection. The Other race category similarly collapses multiple groups because of small sample sizes. Future research might explore health center staff and patients' perspectives on strategies for improving race and ethnicity data collection. This should inform development of culturally responsive strategies to improve data completeness and accuracy. Similarly, health center methods for administering social risk screening vary and include a range of screening questions and workflows, which may influence data disclosure and accuracy. A recent study indicated that negative social risk screens (no reported social risks) are less likely to be recorded,[69] which could have led to underestimating the prevalence and distribution of screening.

Conclusions

An expectation of social risk screening and related interventions in CHCs is that they will promote – not diminish – health equity. Achieving this goal will require both alignment between data documentation requirements and healthcare initiatives as well as equity-

informed analyses that explicitly examine and hold health systems accountable for equity in social care processes and outcomes, particularly given the complex intersectionality of REL identities. These findings suggest that social risk screening practices and patient reporting of risks differ by REL in primary care CHCs. Research is needed to better understand social risk screening and reporting rates as relate to the proportion of minoritized patients served at a given health center. More focus is needed on facilitators, barriers, and outcomes of social risk screening and reporting in diverse populations.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

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Table 1.

Characteristics of adult patients at OCHIN member health centers where social risk screening occurred, 2016–2020

Characteristic	All, No. (%)	Non-Hispanic White, No. (%)	Non-Hispanic Black, No. (%)	Non-Hispanic other race, No. (%)	Hispanic White, No. (%)	Hispanic Black, No. (%)	Hispanic, other race, No. (%)	Race/ethnicity unknown, No. (%)
Patients	**N=1,551,102**	**N=608,709**	**N=266,033**	**N=104,823**	**N=327,746**	**N=17,741**	**N=12,794**	**N=213,256**
Preferred Language								
English	1,146,625 (73.9%)	583,584 (95.9%)	238,060 (89.5%)	57,521 (54.9%)	117,986 (36.0%)	7,351 (41.4%)	6,613 (51.7%)	135,510 (63.5%)
Spanish	290,912 (18.8%)	4,492 (0.7%)	505 (0.2%)	261 (0.2%)	207,156 (63.2%)	10,077 (56.8%)	5,840 (45.6%)	62,581 (29.3%)
Other	113,565 (7.3%)	20,633 (3.4%)	27,468 (10.3%)	47,041 (44.9%)	2,604 (0.8%)	313 (1.8%)	341 (2.7%)	15,165 (7.1%)
Female	882,213 (56.9%)	334,368 (54.9%)	146,178 (54.9%)	63,185 (60.3%)	204,931 (62.5%)	10,313 (58.1%)	7,467 (58.4%)	115,771 (54.3%)
Age Group								
18 – 39	699,149 (45.1%)	257,076 (42.2%)	119,780 (45.0%)	43,134 (41.1%)	159,678 (48.7%)	8,775 (49.5%)	7,159 (56.0%)	103,547 (48.6%)
40 – 64	652,669 (42.1%)	258,469 (42.5%)	117,279 (44.1%)	40,600 (38.7%)	138,708 (42.3%)	7,014 (39.5%)	4,732 (37.0%)	85,867 (40.3%)
65+	199,284 (12.8%)	93,164 (15.3%)	28,974 (10.9%)	21,089 (20.1%)	29,360 (9.0%)	1,952 (11.0%)	903 (7.1%)	23,842 (11.2%)
Insurance								
Private	273,965 (17.7%)	130,070 (21.4%)	43,814 (16.5%)	16,950 (16.2%)	38,373 (11.7%)	3,372 (19.0%)	1,814 (14.2%)	39,572 (18.6%)
Public	872,662 (56.3%)	347,433 (57.1%)	151,049 (56.8%)	68,167 (65.0%)	177,733 (54.2%)	10,790 (60.8%)	7,307 (57.1%)	110,183 (51.7%)
Uninsured	404,475 (26.1%)	131,206 (21.6%)	71,170 (26.8%)	19,706 (18.8%)	111,640 (34.1%)	3,579 (20.2%)	3,673 (28.7%)	63,501 (29.8%)
Federal Poverty Level								
<=200	1,164,652 (75.1%)	414,851 (68.2%)	213,223 (80.1%)	82,356 (78.6%)	283,131 (86.4%)	13,561 (76.4%)	10,490 (82.0%)	147,040 (68.9%)
>200	163,824 (10.6%)	100,483 (16.5%)	17,093 (6.4%)	7,853 (7.5%)	18,866 (5.8%)	840 (4.7%)	692 (5.4%)	17,997 (8.4%)
No Information	222,626 (14.4%)	93,375 (15.3%)	35,717 (13.4%)	14,614 (13.9%)	25,749 (7.9%)	3,340 (18.8%)	1,612 (12.6%)	48,219 (22.6%)
1+ Cardiometabolic Diagnosis on Problem List:	659,540 (42.5%)	249,828 (41.0%)	125,089 (47.0%)	47,163 (45.0%)	145,092 (44.3%)	8,390 (47.3%)	4,903 (38.3%)	79,075 (37.1%)
Diabetes (DM)	203,059 (13.1%)	63,482 (10.4%)	38,970 (14.6%)	16,627 (15.9%)	54,796 (16.7%)	2,609 (14.7%)	1,666 (13.0%)	24,909 (11.7%)
Hypertension	405,721 (26.2%)	160,129 (26.3%)	91,214 (34.3%)	30,106 (28.7%)	72,550 (22.1%)	4,916 (27.7%)	2,463 (19.3%)	44,343 (20.8%)
Dyslipidemia	335,242 (21.6%)	135,140 (22.2%)	49,458 (18.6%)	30,256 (28.9%)	76,433 (23.3%)	3,855 (21.7%)	2,312 (18.1%)	37,788 (17.7%)

Characteristic	All, No. (%)	Non-Hispanic White, No. (%)	Non-Hispanic Black, No. (%)	Non-Hispanic other race, No. (%)	Hispanic White, No. (%)	Hispanic Black, No. (%)	Hispanic, other race, No. (%)	Race/ethnicity unknown, No. (%)
Patients	**N=1,551,102**	**N=608,709**	**N=266,033**	**N=104,823**	**N=327,746**	**N=17,741**	**N=12,794**	**N=213,256**
Obesity	227,061 (14.6%)	82,187 (13.5%)	46,740 (17.6%)	7,914 (7.5%)	57,551 (17.6%)	3,835 (21.6%)	2,074 (16.2%)	26,760 (12.5%)
Total Observation Period Visits								
1	214,500 (13.8%)	80,914 (13.3%)	41,136 (15.5%)	14,677 (14.0%)	42,014 (12.8%)	1,549 (8.7%)	1,524 (11.9%)	32,686 (15.3%)
2–3	251,973 (16.2%)	92,249 (15.2%)	46,657 (17.5%)	16,454 (15.7%)	52,472 (16.0%)	2,139 (12.1%)	1,847 (14.4%)	40,155 (18.8%)
4–8	312,579 (20.2%)	113,739 (18.7%)	52,552 (19.8%)	22,586 (21.5%)	70,202 (21.4%)	2,904 (16.4%)	2,631 (20.6%)	47,965 (22.5%)
9+	772,050 (49.8%)	321,807 (52.9%)	125,688 (47.2%)	51,106 (48.8%)	163,058 (49.8%)	11,149 (62.8%)	6,792 (53.1%)	92,450 (43.4%)
Screened for social risks[a]	164,586 (10.6%)	65,426 (10.7%)	37,448 (14.1%)	9,285 (8.9%)	25,157 (7.7%)	3,935 (22.2%)	1,645 (12.9%)	21,690 (10.2%)

Note: Data obtained from 651 facilities in the OCHIN network linked through a common electronic health record across 21 states in the US: AK, CA, CO, CT, GA, ID, IN, LA, MA, MN, MO, MT, NC, NJ, NM, OH, OR, SC, TX, WA, WI.

Age Group and Insurance obtained from patient's last encounter; Public insurance may be Medicaid, Medicare, or other public insurance. Federal Poverty Level reflects last known value. Cardiometabolic Disease includes any of: diabetes mellitus, hypertension, dyslipidemia, or obesity.

[a]Ever screened for any social risk factors: Child Care, Financial Strain, Food Insecurity, Health Insurance Costs, Medical Costs, Transportation, or Utilities during the observation period.

Table 2.

Adjusted odds ratios of social risk screening and response by race, ethnicity, language

Social Risk Screening	All, No. (%)	Adjusted OR	(95% CI)	Social Risk Factor Reported	All, No. (%)	Adjusted OR	(95% CI)
By Race & Ethnicity				**By Race & Ethnicity**			
Race / Ethnicity[a]	**N=1,551,102**			**Race / Ethnicity**[e]	**N=164,586**		
Non-Hispanic White	608,709 (39.2%)	1.00	Referent	Non-Hispanic White	65,426 (39.8%)	1.00	Referent
Non-Hispanic Black	266,033 (17.2%)	**1.49**	**(1.11–1.99)**	Non-Hispanic Black	37,448 (22.8%)	0.74	(0.52–1.05)
Non-Hispanic other race	104,823 (6.8%)	0.87	(0.54–1.39)	Non-Hispanic other race	9,285 (5.6%)	0.72	(0.50–1.04)
Hispanic White	327,746 (21.1%)	**0.72**	**(0.57–0.92)**	Hispanic White	25,157 (15.3%)	0.86	(0.70–1.04)
Hispanic Black	17,741 (1.1%)	**2.26**	**(1.64–3.12)**	Hispanic Black	3,935 (2.4%)	**0.13**	**(0.08–0.19)**
Hispanic, other race	12,794 (0.8%)	1.27	(0.96–1.69)	Hispanic, other race	1,645 (1.0%)	**0.50**	**(0.37–0.67)**
Race/ethnicity unknown	213,256 (13.7%)	1.05	(0.80–1.38)	Race/ethnicity unknown	21,690 (13.2%)	**0.52**	**(0.40–0.67)**
By Race & Ethnicity, Stratified by Language				**By Race & Ethnicity, Stratified by Language**			
English Language Preferred[b]	**N=1,146,625**			**English Language Preferred**[f]	**N=125,467**		
Non-Hispanic White	583,584 (50.9%)	1.00	Referent	Non-Hispanic White	62,765 (50.0%)	1.00	Referent
Non-Hispanic Black	238,060 (20.8%)	**1.51**	**(1.13–2.03)**	Non-Hispanic Black	33,887 (27.0%)	0.74	(0.52–1.04)
Non-Hispanic other race	57,521 (5.0%)	**0.76**	**(0.61–0.95)**	Non-Hispanic other race	4,463 (3.6%)	0.83	(0.66–1.05)
Hispanic White	117,986 (10.3%)	**0.69**	**(0.54–0.89)**	Hispanic White	8,260 (6.6%)	**0.76**	**(0.61–0.95)**
Hispanic Black	7,351 (0.6%)	**1.82**	**(1.31–2.54)**	Hispanic Black	1,319 (1.1%)	**0.18**	**(0.12–0.28)**
Hispanic, other race	6,613 (0.6%)	0.98	(0.78–1.22)	Hispanic, other race	662 (0.5%)	**0.74**	**0.56–0.98)**
Race/ethnicity unknown	135,510 (11.8%)	1.12	(0.84–1.49)	Race/ethnicity unknown	14,111 (11.2%)	**0.54**	**(0.41–0.70)**
Spanish-language Preferred[c]	**N=290,912**			**Spanish-language Preferred**[g]	**N=26,689**		
Non-Hispanic White	4,492 (1.5%)	1.00	Referent	Non-Hispanic White	393 (1.5%)	1.00	Referent
Non-Hispanic Black	505 (0.2%)	**2.14**	**(1.42–3.23)**	Non-Hispanic Black	88 (0.3%)	0.57	(0.28–1.24)
Non-Hispanic other race	261 (0.1%)	**2.04**	**(1.28–3.27)**	Non-Hispanic other race	41 (0.2%)	0.45	(0.16–1.24)

Social Risk Screening	All, No. (%)	Adjusted OR	(95% CI)	Social Risk Factor Reported	All, No. (%)	Adjusted OR	(95% CI)
By Race & Ethnicity				**By Race & Ethnicity**			
Race / Ethnicity[a]	**N=1,551,102**			**Race / Ethnicity**[e]	**N=164,586**		
Hispanic White	207,156 (71.2%)	0.90	(0.75–1.09)	Hispanic White	16,757 (62.8%)	1.09	(0.83–1.43)
Hispanic Black	10,077 (3.5%)	**2.92**	**(2.02–4.22)**	Hispanic Black	2,554 (9.6%)	**0.11**	**(0.06–0.18)**
Hispanic, other race	5,840 (2.0%)	**1.86**	**(1.24–2.81)**	Hispanic, other race	929 (3.5%)	**0.40**	**(0.25–0.65)**
Race/ethnicity unknown	62,581 (21.5%)	1.11	(0.80–1.56)	Race/ethnicity unknown	5,927 (22.2%)	**0.57**	**(0.38–0.87)**
Other Language Preferred[d]	**N=113,565**			**Other Language Preferred**[h]	**N=26,689**		
Non-Hispanic White	20,633 (18.2%)	1.00	Referent	Non-Hispanic White	2,268 (18.2%)	1.00	Referent
Non-Hispanic Black	27,468 (24.2%)	1.04	(0.49–2.19)	Non-Hispanic Black	3,473 (27.9%)	0.64	(0.25–1.65)
Non-Hispanic other race	47,041 (41.4%)	0.93	(0.31–2.72)	Non-Hispanic other race	4,781 (38.5%)	0.41	(0.13–1.30)
Hispanic White	2,604 (2.3%)	0.55	(0.28–1.07)	Hispanic White	140 (1.1%)	0.97	(0.45–2.10)
Hispanic Black	313 (0.3%)	1.59	(0.81–3.15)	Hispanic Black	62 (0.5%)	**0.10**	**(0.01–0.78)**
Hispanic, other race	341 (0.3%)	1.52	(0.64–3.62)	Hispanic, other race	54 (0.4%)	0.12	(0.01–1.10)
Race/ethnicity unknown	15,165 (13.4%)	0.96	(0.65–1.43)	Race/ethnicity unknown	1,652 (13.3%)	**0.60**	**(0.40–0.89)**

Note: Boldface indicates statistical significance (p<0.05).

[a]Model: Ever screened for any social risk factors: (Financial Resource Strains: child care needs, financial strain, food insecurity, health insurance costs, medical costs, transportation access, or utilities insecurity) during the observation period. Adjusted for preferred language, sex at birth, age group, insurance, federal poverty level, total number encounters, and cardiometabolic disease status;

[b-d]Models: Ever screened for SDH and stratified on preferred language (English[b], Spanish[c], and Other language[d]). Adjusted for sex at birth, age group, insurance, federal poverty level, total number encounters, and cardiometabolic disease status;

[e]Model: Ever screened for SDH and reported a social risk factor. Adjusted for preferred language, sex at birth, age group, insurance, federal poverty level, total number encounters, and cardiometabolic disease status;

[f-h]Model: Ever screened for SDH and reported a social risk factor and stratified on preferred language (English[f], Spanish[g], and Other language[h]). Adjusted for sex at birth, age group, insurance, federal poverty level, total number encounters, and cardiometabolic disease status;

Covariate detail: Age Group and Insurance obtained from patient's last encounter; Public insurance may be Medicaid, Medicare, or other public insurance. Federal Poverty Level reflects last known value. Cardiometabolic Disease includes any of: diabetes mellitus, hypertension, dyslipidemia, or obesity.

Data obtained from 651 facilities in the OCHIN network linked through a common electronic health record across 21 states in the US: AK, CA, CO, CT, GA, ID, IN, LA, MA, MN, MO, MT, NC, NJ, NM, OH, OR, SC, TX, WA, WI.