Variation in Baseline Colorectal Cancer Screening Rates and Modalities in a Multi-Region Trial in Community Health Centers.

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Introduction: Colorectal cancer (CRC) screening is underutilized, especially in community health centers (CHCs) that provide primary care services to low-income, uninsured, and racial/ethnic minority populations. The Community Collaboration to Advance Racial/Ethnic Equity in CRC Screening (CARES) study aims to increase CRC screening rates in CHCs in three regions of the United States. In this pre-intervention analysis, we aimed to evaluate baseline CRC screening rates and CHC characteristics in FQHCs in two of the study regions.

Methods: CARES is a two-arm, multi-level, multi-component pragmatic randomized trial that includes 4 greater Boston and 4 greater Los Angeles (LA) CHCs. We conducted a pre-intervention retrospective analysis of baseline CRC screening rates for clinics in the study. For each clinic, we queried electronic health record (EHR) data to identify patients ages 45-75 with a recent primary care visit (within 3 years in Boston and within 2 years in LA) and preferred English or Spanish language. We calculated descriptive characteristics and screening rates for each clinic, region, and overall. We also examined screening modalities and screening disparities by race/ethnicity for each region.

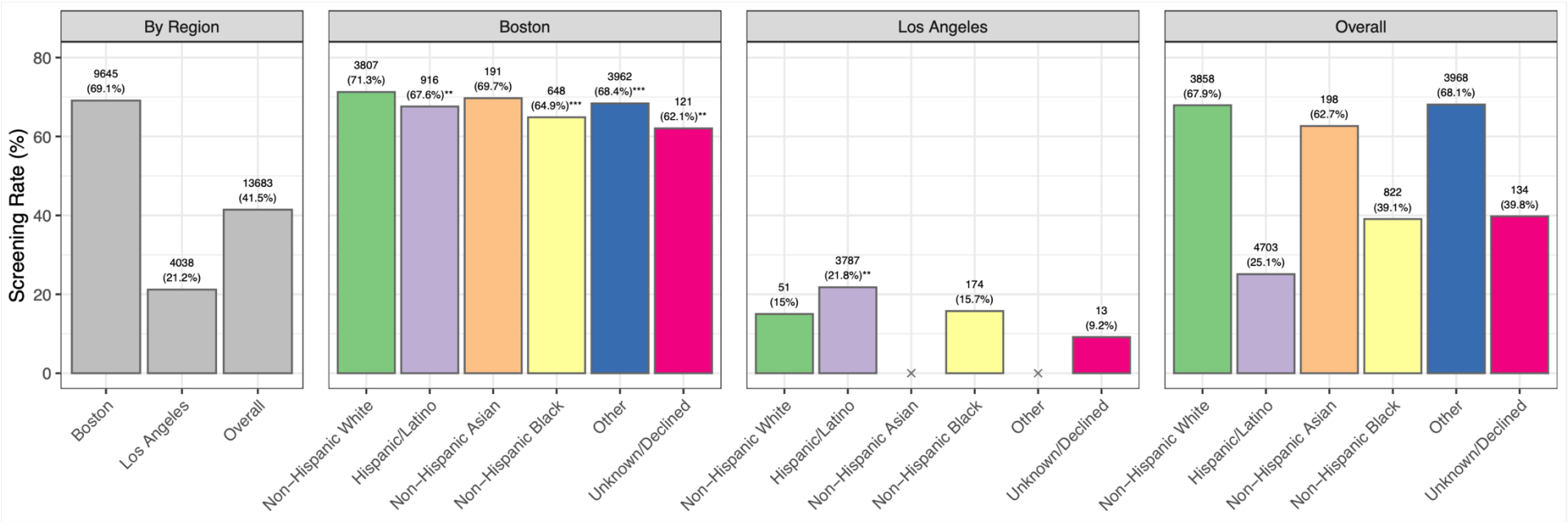
Results: 33,099 patients were identified; 13,957 (42.3%) in Boston and 19,052 (57.7%) in LA. Overall, mean age was 57.1 years (sd=8.1) and 58.0% were female. In Boston, 38.3% were Non-Hispanic White, 62.1% preferred speaking English, and 65.1% were privately insured. In LA, 91.3% were Hispanic, 86.8% preferred Spanish, and 72.4% were Medicaid insured (**Table**). The mean CRC screening rate was significantly higher in the Boston clinics than in the LA clinics (69.1% v. 21.2%; $p<0.0001$). Of those screened, the most common screening modality was colonoscopy in Boston (84.3%) and the fecal immunochemical test (FIT) in LA (92.2%). Screening participation also varied significantly by race/ethnicity in each region and across regions (**Figure**).

Conclusion: We observed great variation in CRC screening rates and modalities, depending on the CHC setting. Higher screening and colonoscopy rates in Boston may be due to multiple factors, including differences in patient demographics, lower prevalence of immigrant populations, fewer language barriers, and/or better access and capacity. In addition, highly effective insurance reform that greatly expanded insurance coverage in Massachusetts in 2006 ("Massachusetts Health Care Reform") likely plays a role. The CHCs in Boston were closely affiliated with an academic health center, which may reduce challenges delivering preventive healthcare services and increase access to colonoscopy. Although CRC screening rates are low in many underserved populations, resource allocation for targeted interventions should consider regional differences.

Table: Study Population Demographics and Clinical Data overall and by region.

Patient Characteristic	**Boston n = 13957 (42.3%)**	**Los Angeles n = 19052 (57.7%)**	**Overall N = 33099**
Age, years [mean (sd)]	58.9 (8.8)	55.9 (7.5)	57.1 (8.1)
Female sex, n (%)	8137 (58.3)	11012 (57.8)	19149 (58.0)
Race/ethnicity, n (%)			
Non-Hispanic White	5341 (38.3)	340 (1.8)	5681 (17.2)
Non-Hispanic Asian	1355 (9.7)	42 (0.2)	1397 (4.2)
Non-Hispanic Black	274 (2)	1105 (5.8)	1379 (4.2)
Hispanic	999 (7.2)	17388 (91.3)	18387 (55.7)
Other (AI/AN, NH/OPI, multiple)	5793 (41.5)	35 (0.2)	5828 (17.7)
Unknown/Declined	195 (1.4)	142 (0.7)	337 (1)
Language Preference, n (%)			
English	8665 (62.1)	2513 (13.2)	11178 (33.9)
Spanish	5292 (37.9)	16539 (86.8)	21831 (66.1)
Insurance Type, n (%)			
Commercial/Private	9092 (65.1)	502 (2.6)	9594 (29.1)
Medicaid	1786 (12.8)	13796 (72.4)	15582 (47.2)
Medicare	2500 (17.9)	1215 (6.4)	3715 (11.3)
Uninsured/Self Pay	343 (2.5)	2988 (15.7)	3331 (10.1)
Other/Missing	236 (1.7)	551 (2.9)	787 (2.4)
CRC screening status, n (%)			
Overdue	4312 (30.9)	15014 (78.8)	19326 (58.5)
Up-to-date	9645 (69.1)	4038 (21.2)	13683 (41.5)
CRC screening modality, n (%)			
Cologuard	776 (5.6)	0 (0)	776 (2.4)
Both Colonoscopy and FIT	0 (0)	81 (0.4)	81 (0.2)
Colonoscopy	8126 (58.2)	235 (1.2)	8361 (25.3)
FIT	743 (5.3)	3722 (19.5)	4465 (13.5)
None	4312 (30.9)	15014 (78.8)	19326 (58.5)
Footnote: In these clinical settings, family history of diseases and polyposis syndromes are often not documented, limiting our ability to exclude patients based on familial disease.			

Figure: Number and proportion of patients screened for CRC by community health center region and race/ethnicity.



Footnotes: Racial/ethnic groups with <=10 people screened are suppressed from the figure and marked with an “x.” Asterisks indicate significant difference from reference group Non-Hispanic White within that region at the following p-values: *p<0.05, **p<0.01, ***p<0.001. Also, racial/ethnic differences between region comparisons are all statistically significant with p-value<0.001 (e.g., Non-Hispanic White in Boston compared to Non-Hispanic White in LA).