Title: COLORECTAL CANCER SCREENING RATES AT FEDERALLY QUALIFIED HEALTH CENTERS SERVING MAJORITY LGBTQIA+ PATIENTS

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Character Count: 2895 / 2900 characters including spaces.

Abstract Due: December 5, 2024

Submission Category: Clinical Practice: Health Disparities in Patients with GI Disease

Introduction: LGBTQIA+ adults in the United States (US) often face unique barriers to health care services that are augmented by intersecting marginalized identities. LGBTQIA+ patients receiving preventive services at Federally Qualified Health Centers (FQHCs) represent a particularly underserved and understudied population. We assessed colorectal cancer (CRC) screening rates and predictors of screening in US FQHCs serving primarily LGBTQIA+ adults compared to FQHCs serving primarily cisgender-heterosexual (cishet) adults.

Methods: We used data from the 2023 Uniform Data System that reports clinic-level data for all US FQHCs. For each FQHC, we abstracted the 2023 CRC screening rate for patients aged 45-75. Then, we stratified FQHCs by majority sexual orientation and gender identity served. Next, we matched FQHCs that serve a plurality of LGBTQIA+ patients to FQHCs that serve a plurality of cishet patients in a maximum 1:4 ratio based on state, urban/rural status, total patients served, and proportion of CRC eligible patients. Finally, we used multivariable linear regression to identify clinic-level factors associated with 2023 CRC screening rates, with special attention to the role of sexual orientation and gender identity.

Results: Nationwide, there were 1,271 FQHCs and 7,136,160 patients eligible for CRC screening in 2023; the median 2023 CRC screening rate was 38.9%. The median screening rate was 40.3% in the 11 majority LGBTQIA+ FQHCs (0.87%) and 40.1% in the matched majority cishet FQHCs (p=0.949). There were notable differences in the demographic make-up of LGBTQIA+ majority and cishet majority FQHCs (Table 1). In our adjusted model, significant predictors of 2023 CRC screening rate were LGBTQIA+ majority, male sex, and majority other race/ethnicity. LGBTQIA+ majority FQHCs had significantly higher 2023 CRC screening rates than matched cishet FQHCs (Coef: 18.7, 95%CI: 3.0, 34.4) (Table 2). In addition, FQHCs with a larger percentage of male patients had significantly lower 2023 screening rates (Coef: -1.0, 95%CI: -1.8, -0.2). For FQHCs with majority other race/ethnicity, CRC screening rates were significantly higher than for majority non-Hispanic White FQHCs (Coef: 44.8, 95%CI: 14.8, 74.7).

Discussion: In our adjusted model, FQHCs serving primarily LGBTQIA+ adults had significantly higher CRC screening rates than matched majority cishet FQHCs in 2023. We also noted lower screening rates in FQHCs with a large percentage of male patients. While the latter finding is consistent with prior studies, it is unclear why FQHCs that serve LGBTQIA+ patients have relatively higher screening rates. Potential explanations include LGBTQIA+-affirming clinical practices, safe and inclusive health care spaces, and targeted preventive care outreach. Future research should further investigate CRC screening use and clinical practices in LGBTQIA+ majority FQHCs.

Table 1. Characteristics of majority LGBTQIA+ Federally Qualified Health Centers (FQHCs) and matched heterosexual-cisgender FQHCs in the United States in 2023

	Matched Cisgender Heterosexual- FQHCs	Majority LGBTQIA+ FQHCs	All FQHCs	p-value*
Total Number of Clinics [n]	35	11	1271	
% CRC Screening Rate [Median]	40.1	40.3	38.9	0.949
% Age 45-49 [median]	6.1	6.2	6.0	0.748
% Male [median]	**42.3**	**62.6**	**43.0**	**<0.001****
% Uninsured [median]	14.9	17.1	15.9	0.344
% Medicaid [median]	**62.1**	**35.4**	**44.4**	**0.005**
% >200% FPL [median]	**3.5**	**20.0**	**5.7**	**<0.001**
% Homeless [median]	2.0	2.4	2.0	0.803
% Non-English Language Preference [median]	**41.5**	**12.0**	**14.6**	**0.011**
Race/Ethnicity [median]				
% White non-Hispanic	**14.9**	**35.4**	**33.5**	**0.002**
% Black non-Hispanic	9.0	18.0	8.9	0.309
% Hispanic	33.7	33.2	19.1	0.241
% Asian non-Hispanic	2.4	5.6	1.0	0.107
% Other non-Hispanic	5.3	5.3	3.4	0.671
Region [n, (%)]				
West (*Comparison*)	12 (34.3%)	3 (27.3%)	352 (27.7%)	0.872
Midwest	6 (17.1%)	3 (27.3%)	267 (21.0%)	
South	2 (5.7%)	1 (9.1%)	437 (34.4%)	
Northeast	15 (42.9%)	4 (36.4%)	215 (16.9%)	
Urban/Rural [n, (%)]				
Urban	31 (88.6%)	10 (90.9%)	754 (59.3%)	
Rural	4 (11.4%)	1 (9.1%)	517 (40.7%)	
Use of Health Information Technology [n, (%)]* **	28 (80.0%)	5 (45.5%)	883 (69.5%)	0.051

**Comparing majority LGBTQIA+ clinics to matched cishet clinics*
***Bolded values indicate a significant difference between majority LGBTQIA+ and matched cishet FQHCs (p<0.05)*
****UDS defines health information technologies as the following tools: patient portals, kiosks, secure messaging, virtual scheduling, automated electronic outreach for preventive care reminders, and mobile health applications to access medical records*

FQHCs were stratified based on sexual orientation and gender identity. We classified majority LGBTQIA+ FQHCs as those serving a plurality of patients identifying as: lesbian/gay, bisexual, transgender man/transgender male/transmasculine, transgender woman/transgender female/transfeminine, and other sexual orientations or gender identities. We classified majority cishet FQHCs as those serving a plurality of patients identifying as heterosexual (or straight) sexuality and cisgender identities. FQHC plurality was defined as sexual orientation and gender identity with the highest proportion of patients.

All categorical variables reported using [n (%)] and tested using Fisher's exact test. All continuous variables reported using (median [IQR]) and tested using Wilcoxon rank sum test.

Table 2. Clinic-level factors associated with colorectal cancer (CRC) screening rate in 2023 at Federally Qualified Health Centers (FQHCs) in the United States serving majority LGBTQIA+ patients and matched heterosexual-cisgender FQHCs based on multivariable linear regression.

	LGBTQIA+ Clinics and Matched Heterosexual-Cisgender Clinics (n=46)			
	Adjusted Coefficient*	**95% Confidence Interval**		**p-value**
LGBTQIA+ Clinics Only	**18.7**	**3.0**	**34.4**	**0.022***
Patients Aged 45-49 in 2023 (%)	-0.4	-5.0	4.2	0.866
Male Patients (%)	**-1.0**	**-1.8**	**-0.2**	**0.020**
Patients >200% Federal Poverty Level (%)	-0.5	-1.6	0.5	0.313
Patients Preferring Language Other than English (%)	0.2	-0.2	0.5	0.292
Uninsured (%)	-0.4	-1.1	0.3	0.204
Majority Race/Ethnicity Served at FQHC (%)				
Non-Hispanic White	Referent	–	–	–
Hispanic	4.1	-12.0	20.2	0.604
Non-Hispanic Black	-4.1	-20.7	12.6	0.619
Non-Hispanic Asian	22.7	-0.6	46.1	0.056
Non-Hispanic Other	**44.8**	**14.8**	**74.7**	**0.005**
Region (%, Western Reference)				
Western	Referent	–	–	–
Midwest	4.8	-9.4	19.1	0.490
South	24.8	-0.3	49.8	0.052
Northeast	3.3	-7.8	14.4	0.540
Urbanicity				
Urban	Referent	-	-	-
Rural	-0.2	-21.4	21.0	0.984
Use of Health Information Technologies	2.0	-8.6	12.8	0.689

**Bolded values indicate significance at p<0.05 value*

Cishet clinics were matched to LGBTQIA+ clinics based on state, urban/rural status, total 2023 patients, and percentage of patients eligible for colorectal cancer screening

Model adjusts for % 45-49, % male, % >200% federal poverty level, % English second language, plural ethnicity, region, % uninsured, urban/rural status, and use of health information technologies.