Impact of State Medicaid Expansion Status on Colorectal Cancer Screening Rates and Predictors of Screening at U.S. Federally Qualified Health Centers

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Introduction: Medicaid expansion is a provision in the Affordable Care Act that increases access to health insurance and preventive services for low-income individuals, however not all U.S. states participate. Individuals with Medicaid and in medically underserved areas often receive preventive services at Federally Qualified Health Centers (FQHCs). We aimed to study the impact of Medicaid expansion on colorectal cancer (CRC) screening rates in FQHCs by comparing CRC screening rates and predictors of screening in FQHCs in Medicaid expansion and non-expansion states.

Methods: We used national FQHC quality data from the 2021 Uniform Data System (UDS) to perform a cross-sectional analysis of all U.S FQHCs. We obtained 2021 CRC screening rates for each FQHC and for each state (FQHCs only) for patients age 50-74. (CRC screening data for patients age 45-75 are not available in UDS.) We then used Wilcoxon rank sum and chi-sq tests to compare FQHC patient-mix characteristics based on Medicaid expansion status. Finally, we performed mixed-effects linear regression models to determine FQHC patient-mix characteristics that predict high and low CRC screening participation in FQHCs in Medicaid expansion states and in FQHCs in non-expansion states. Medicaid expansion status was determined from Kaiser Family Foundation data in 11/2022.

Results: Overall, there were 6,940,879 patients eligible for CRC screening in 1,284 U.S. FQHCs in 2021. FQHC patient characteristics differed based on Medicaid expansion status (**Table 1**). The median CRC screening rate among all FQHCs in 2021 was 40.8%. CRC screening rates were significantly higher in FQHCs in Medicaid expansion states than in non-expansion states (42.1% v. 36.5%, p≤0.0001) (**Table 1**). In the adjusted model for states without Medicaid expansion, FQHCs in rural settings (urban coef 4.21, 95%CI 0.03, 8.39) or with a high proportion of uninsured patients (coef -10.27, 95%CI -14.00, -6.54) had significantly higher odds of lower CRC screening rates (**Table 2**). FQHCs located in Medicaid expansion states, however, experienced significantly lower CRC screening rates if they had large proportions of male, Black, Hispanic, low income, unhoused, or uninsured individuals **(Table 2).**

Discussion: CRC screening rates in U.S. FQHCs are significantly higher in states that implemented Medicaid expansion than in non-expansion states. The impact of being uninsured on participation in CRC screening remains profound in non-expansion states, while race/ethnicity, homelessness, and poverty also predict screening utilization in Medicaid expansion states. Our results suggest that Medicaid expansion states have

minimized CRC screening disparities due to uninsured status and that targeted interventions to improve CRC screening participation should differ in FQHCs in Medicaid expansion and non-expansion states.

Table 1. FQHC characteristics overall and by Medicaid expansion status.

Frequency or percent	All FQHCs (n=1284)	In 2021 Medicaid Expansion States (n=971)	In 2021 Non-Medicaid Expansion States (n=313)	p
Total patients eligible for CRC screening (age 50-74)$^{\Psi}$	6,940,879	5,222,932	1,717,947	n/a
CRC screening rate in 2021 (median %)	40.8	42.1	36.5	**<0.0001**
Sex Male (median %)	43.1	43.5	42.0	**<0.0001**
Race & Ethnicity (median %)				
White Non-Hispanic	35.3	37.6	32.5	**0.008**
Black Non-Hispanic	9.1	6.0	21.2	**<0.0001**
Hispanic/Latino	17.0	16.0	18.5	**0.036**
Other Non-Hispanic	4.9	5.4	3.1	**<0.0001**
Preference for non-English Language (median %)	12.1	12.6	11.3	0.997
Patients experiencing homelessness (median %)	1.7	1.8	1.4	**0.049**
Income Level >200% FPL (median %)	5.3	5.6	4.5	**0.013**
Uninsured (median %)	17.6	14.5	31.4	**<0.0001**
Urban, n (%)	754 (58.7)	576 (59.3)	178 (56.9)	0.444
Medicaid Expansion State, n (%)				

P-values compare Medicaid expansion states to non-expansion states.

Bolded p-values indicate significance at the p<0.05 level.

Table 2. Sociodemographic Factors associated with CRC Screening Rates in 2021, by Medicaid expansion status; n=1,061.

	FQHCs Medicaid non-expansion states (n=255)			FQHCs in Medicaid-expansion states (n=806)		
	Coefficient	95% CI	*p*	Coefficient	95% CI	*p*
Race/Ethnicity*						
White non-Hispanic	0.88	-2.35, 4.13	0.59	0.49	-1.32, 2.31	0.59
Hispanic/Latinx	2.62	-1.46, 6.69	0.21	**-4.38**	**-6.34, -2.41**	**<0.001**
Black non-Hispanic	-1.12	-4.13, 1.89	0.47	**-2.53**	**-4.06, -1.01**	**0.001**
non-Hispanic other	-1.25	-3.73, 1.24	0.33	-0.27	-1.58, 1.05	0.69
Male (%)*	-0.67	-3.14, 1.79	0.59	**-1.41**	**-2.71, -0.11**	**0.033**
Urban (%)	**4.21**	**0.03, 8.39**	**0.048**	1.03	-1.97, 4.04	0.501
Patients experiencing homelessness*	-0.21	-2.46, 2.04	0.856	**-1.77**	**-3.07, -0.48**	**0.007**
Uninsured patients*	**-10.27**	**-14.0, 6.54**	**<0.0001**	**-3.05**	**-4.46, -1.64**	**<0.001**
Patients with a preference for non-English Language*	2.24	-1.42, 5.90	0.231	**5.46**	**3.46, 7.46**	**<0.001**
Percentage of patients with income >200% FPL*	0.48	-1.82, 2.78	0.68	**3.26**	**1.89, 4.64**	**<0.001**
Number of patients ages 50-74 in 2021*	0.00	-0.00, 0.00	0.40	**0.00**	**0.00, 0.00**	**0.038**

*All independent variables except "Urban" were categorized into tertiles and analyzed continuously. Interpretation of regression coefficients would be: "after adjusting for other FQHC factors, in (non-)Medicaid expansion states, an increase in tertile of percentage of [independent variable] patients was associated with a [coefficient]-point decrease in CRC screening rate in 2021."
Bolded coefficients indicate significance at the p<0.05 level.