

# EXPLORING HEALTH CENTER GEOGRAPHIC VARIATION OF COLORECTAL CANCER SCREENING RATES AND THE IMPACT OF COVID-19

December 2021

## Key Findings

- The two southern Health and Human Services (HHS) Regions (Region 4 [AL, FL, GA, KY, MS, TN, NC, SC] and Region 6 [AR, LA, OK, NM, TX]) have the lowest colorectal cancer screening rates in the U.S. and experienced significant decreases in screening rates in 2020.
- After adjusting for patient characteristics, all HHS Regions experienced decreases in screening rates in 2020. Region 2 (NJ, NY, PR) and Region 9 (AZ, CA, HI, NV) experienced the largest decreases, while Region 7 (KS, MO, IA, NE) and Region 8 (CO, MT, ND, SD, UT, WY) had the smallest decreases.
- Delays in cancer screening and diagnosis can lead to higher incidence of advanced stages and poorer outcomes. Opportunities to leverage non-procedural screenings where clinically indicated can mitigate declines in screening rates.

## Overview

COVID-19 disrupted access to health care services and contributed to a decrease of more than 1 million health center patients between 2019 and 2020.<sup>1</sup> Research also suggests that many people are foregoing critical preventive care such as cancer screenings, illustrated by screening decreases of more than 80 percent during the early months of the pandemic.<sup>2</sup> While cancer screening rates have rebounded since early 2020, fewer people are being screened in 2021 compared to prior years.<sup>3</sup> Mitigating potential long-term consequences of these missed screenings requires targeting resources to reach the most vulnerable populations.<sup>4-5</sup> Focusing on colorectal cancer screening is important as it is the third-leading cause of death among cancer sites for both men and women and has relatively high survival rates when detected early.<sup>6-7</sup>

## Objective

This research explores the geographic variation in colorectal cancer screening rates for Health Center Program awardees in 2020 and differences in rates between 2017-2019 and 2020.

## Data Sources and Methods

We linked Health Center Program awardee data from the 2017–2020 UDS for colorectal cancer screening rates, calculated average screening rates for 2017–2019, and aggregated by HHS Region. Additionally, we adjusted rates by patient characteristics such as percent uninsured, percent experiencing homelessness, percent migrant/agricultural workers, and percent racial/ethnic minority. We used analysis of variance (ANOVA) and t-tests to explore differences across HHS Regions and over time (2017–2019 compared to 2020).

## Results

### Fewer patients were screened in 2020 compared to 2019

Overall, national health center colorectal cancer screening rates decreased from 45.6% in 2019 to 40.1% in 2020, translating to a difference of nearly 300,000 patients. The decreases were

## Exploring Health Center Geographic Variation of Colorectal Cancer Screening Rates and the Impact of COVID-19

evident even after averaging the rates for 2017–2019, which resulted in a rate decrease of almost four percent.

### Clear geographic patterns in colorectal cancer screening

After adjusting for patient characteristics, health center colorectal cancer screening rates declined in all HHS Regions, with statistically significant declines in all but three regions (Region 7 [KS, MO, IA, NE], Region 8 [CO, MT, ND, SD, UT, WY], and Region 10 [AK, ID, OR, WA]).

- Region 2 [NJ, NY, PR] and Region 9 [AZ, CA, HI, NV] experienced the largest decreases in colorectal cancer screening rates, while both Region 4 [AL, FL, GA, KY, MS, NC, SC, TN] and Region 6 [AR, LA, NM, OK, TX] have the lowest rates among HHS Regions, and Region 7 [KS, MO, IA, NE] and Region 8 [CO, MT, ND, SD, UT, WY] experienced the smallest decreases though not statistically significant.

**Table 1. Adjusted Health Center Colorectal Cancer Screening Rates by HHS Region**

	All	1	2	3	4	5	6	7	8	9	10
States		CT, ME, MA, NH, RI, VT	NJ, NY, PR	DE, DC, MD, PA, VA, WV	AL, FL, GA, KY, MS, NC, SC, TN	IL, IN, MI, MN, OH, WI	AR, LA, NM, OK, TX	IA, KS, MO, NE	CO, MT, ND, SD, UT, WY	AZ, CA, HI, NV	AK, ID, OR, WA
# Health Centers	1,329	100	105	123	231	184	154	67	158	210	96
2017-2019 Rate (%)	44.1	42.9	42.1	42.5	38.8	42.3	39.2	40.6	39.1	41.7	42.0
2020 Rate (%)	40.2	41.6 *	39.1 **	41.4 *	37.3 **	40.7 **	37.5 **	39.9	38.8	38.5 **	40.8

Note: Rates are significantly different for 2020 compared to 2017-19: \* p<0.05; \*\* p<0.01

## Exploring Health Center Geographic Variation of Colorectal Cancer Screening Rates and the Impact of COVID-19

Figure 1. Adjusted Health Center Colorectal Cancer Screening Rate Decline by HHS Region

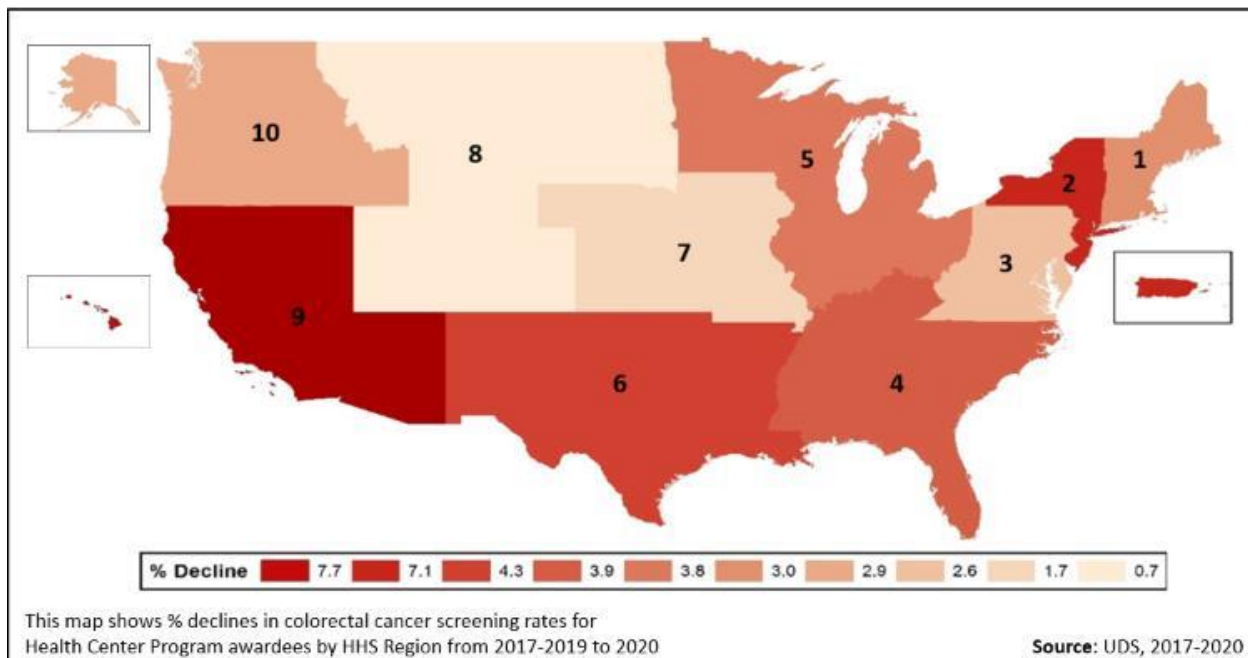


Figure 1 shows that health center colorectal cancer screening rates declined for all HHS Regions, with significant declines in Regions 2, 4, 6, and 9.

### Discussion

Health Center Program awardees served more than one million fewer patients in 2020, largely due to the COVID-19 pandemic.<sup>1</sup> An increase in cancer diagnoses and poorer future health outcomes could result if the decrease in preventive cancer screenings remains constant.<sup>4</sup> This research found that colorectal cancer screening rates decreased significantly for health centers in 2020, with rates decreasing more than five percent since 2019 with almost 300,000 fewer adults aged 51-75 being screened. While every region experienced a decrease in screening rates, they were not uniform across the U.S., as some regions experienced decreases of more than seven percent (Region 2 [NJ, NY, PR] and Region 9 [AZ, CA, HI, NV]). Targeted outreach and resources are needed for regions with the lowest rates and the largest decreases in screening, particularly in the southern regions (Regions 4 [AL, FL, GA, KY, MS, NC, SC] and Region 6 [AR, LA, NM, OK, TX]), which also have the highest rates of colorectal cancer mortality.<sup>8</sup> Delays in screening and diagnosis can lead to higher incidence of advanced stages and poorer outcomes.

### Next Steps

- Future research should identify health centers with the largest declines in colorectal cancer screening rates and other clinical quality measures in 2020 compared to previous years and explore the characteristics of these health centers.

# Exploring Health Center Geographic Variation of Colorectal Cancer Screening Rates and the Impact of COVID-19

---

## Additional Details on Data Sources and Methods

We removed 46 health centers that were missing data or had fewer than 10 adults ages 51-75 who were eligible for screening. Health centers were stratified by HHS Region, which provided greater geographical representation than states and more granularity than U.S. Census Regions. We used analysis of variance (ANOVA) and t-tests to explore differences across HHS Regions and over time (2017-2019 compared to 2020).

## Limitations

Health center colorectal cancer screening rates were aggregated to multi-state HHS Regions, which may mask within-region variation.

## References

1. Uniform Data System (UDS). Health Resources and Services Administration (HRSA) Health Center Program; 2019, 2020.
2. Mast C, del Rio AM. *Cosmos Study update: Delayed cancer screenings-a second look*. Epic Health Research Network; July 17, 2020. Accessed March 15, 2021. <https://ehrn.org/articles/delayed-cancer-screenings-a-second-look/>
3. Chen RC, Haynes K, Du S, Barron J, Katz AJ. Association of cancer screening deficit in the United States with the COVID-19 pandemic. *JAMA Oncol*. 2021;7(6):878–884. doi:10.1001/jamaoncol.2021.0884
4. National Cancer Institute's PROSPR Consortium, Corley DA, Sedki M, et al. Cancer screening during the coronavirus disease-2019 pandemic: A perspective from the National Cancer Institute's PROSPR Consortium. *Gastroenterology*. 2021;160(4):999-1002. doi:10.1053/j.gastro.2020.10.030
5. Crosswell JM, Corley DA, Lafata JE, Haas JE, et al. Cancer screening in the U.S. through the COVID-19 pandemic, recovery, and beyond. *Prev Med*. 2021;151:106595. doi:10.1016/j.ypmed.2021.106595
6. doi:10.1016/j.ypmed.2021.106595
7. U.S. Preventive Services Task Force. Screening for colorectal cancer: U.S. Preventive Services Task Force Recommendation Statement. *JAMA*. 2021;325(19):1965–1977. doi:10.1001/jama.2021.6238
8. Cheng E, Blackburn HN, Ng K, et al. Analysis of survival among adults with early-onset colorectal cancer in the National Cancer Database. *JAMA Netw Open*. 2021; 4(6):e2112539. doi:10.1001/jamanetworkopen.2021.12539
9. Cancer Statistics at a Glance, 1999-2018. National Cancer Institute U.S. Cancer Statistics Working Group; 2021. [www.cdc.gov/cancer/dataviz](http://www.cdc.gov/cancer/dataviz)

## Key Definitions and Acronyms

U.S. Department of Health and Human Services Regions (HHS Regions): Ten administrative regions that serve state and local organizations.

## Authors and Acknowledgements

### Authors

Michael Topmiller, PhD, HealthLandscape, American Academy of Family Physicians

### Acknowledgements

This work is supported by the Health Resources and Services Administration under contract HSH250201800033G.

## Exploring Health Center Geographic Variation of Colorectal Cancer Screening Rates and the Impact of COVID-19

---

### Suggested Citation

Topmiller M. *Exploring Health Center Geographic Variation of Colorectal Cancer Screening Rates and the Impact of COVID-19*. Health Resources and Services Administration; 2021.

### Contact Us

To learn more about HRSA, visit [www.HRSA.gov](http://www.HRSA.gov).

To learn more about HRSA's Bureau of Primary Health Care, visit [bphc.hrsa.gov](http://bphc.hrsa.gov).

[Sign up](#) for the *Primary Health Care Digest*.

To send inquiries, contact [Health Center Program Support](#).