



# The Effects of the COVID-19 Pandemic on Average-Risk Colorectal Cancer Screening: A Quality Assurance Evaluation to Assess Policy Success at the Facility Level

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## Critical Findings

- CRC screening uptake dropped significantly due to the COVID-19 pandemic, even when including community procedures
- These results are not explained by the presence of “no-shows” as the proportion attending 0 PCP appointments remained similar between periods
- Area deprivation index (ADI), a variable approximating neighborhood-level socioeconomic disparities, was inversely correlated with screening uptake
- Future research should aim to identify VHA facility characteristics which favored maintenance of CRC screening during the pandemic

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## INTRODUCTION

- The Veterans' Health Administration (VHA) is a leader in colorectal cancer (CRC) screening, achieving >80% coverage per previous data<sup>1</sup>
- The COVID-19 pandemic and policies to curb transmission resulted in the cancellation of average-risk screening colonoscopies, a core CRC screening method
- Mail-out fecal immunochemical testing (FIT) emerged as a policy solution; however, its ability to maintain CRC screening at requires confirmation
- We sought to assess screening uptake, a measure of policy success while controlling for any racial/neighborhood level disparities, using the Area Deprivation Index (ADI)<sup>2</sup>, at our Veterans' Hospital

## DATA SOURCES AND METHODS

- CRC screening eligible patients (African Americans: 45-75 y/o; All other races 50-75 y/o) with >0 PCP visits within one year of Mar. 1<sup>st</sup> 2019/2020 were assessed in two cohorts:
  - Pre-pandemic – Mar. 1<sup>st</sup>, 2019 – Feb. 28<sup>th</sup>, 2020
  - Pandemic – Mar. 1<sup>st</sup>, 2020 – Feb. 28<sup>th</sup>, 2021
- Any previous ICD-9/10 codes + VHA health factors *excluded* those with family history of CRC, personal history of colorectal polyps, CRC, irritable bowel disease (IBD), dementia, or palliative care encounters
- Primary outcome → screening uptake as determined via CPT codes, lab result, or VHA health factor
- The unadjusted and adjusted association between pandemic/pre-pandemic CRC screening uptake was assessed using binary logistic regression and summarized as odds ratio (OR) along with 95% confidence intervals (CI).

## ACKNOWLEDGMENTS

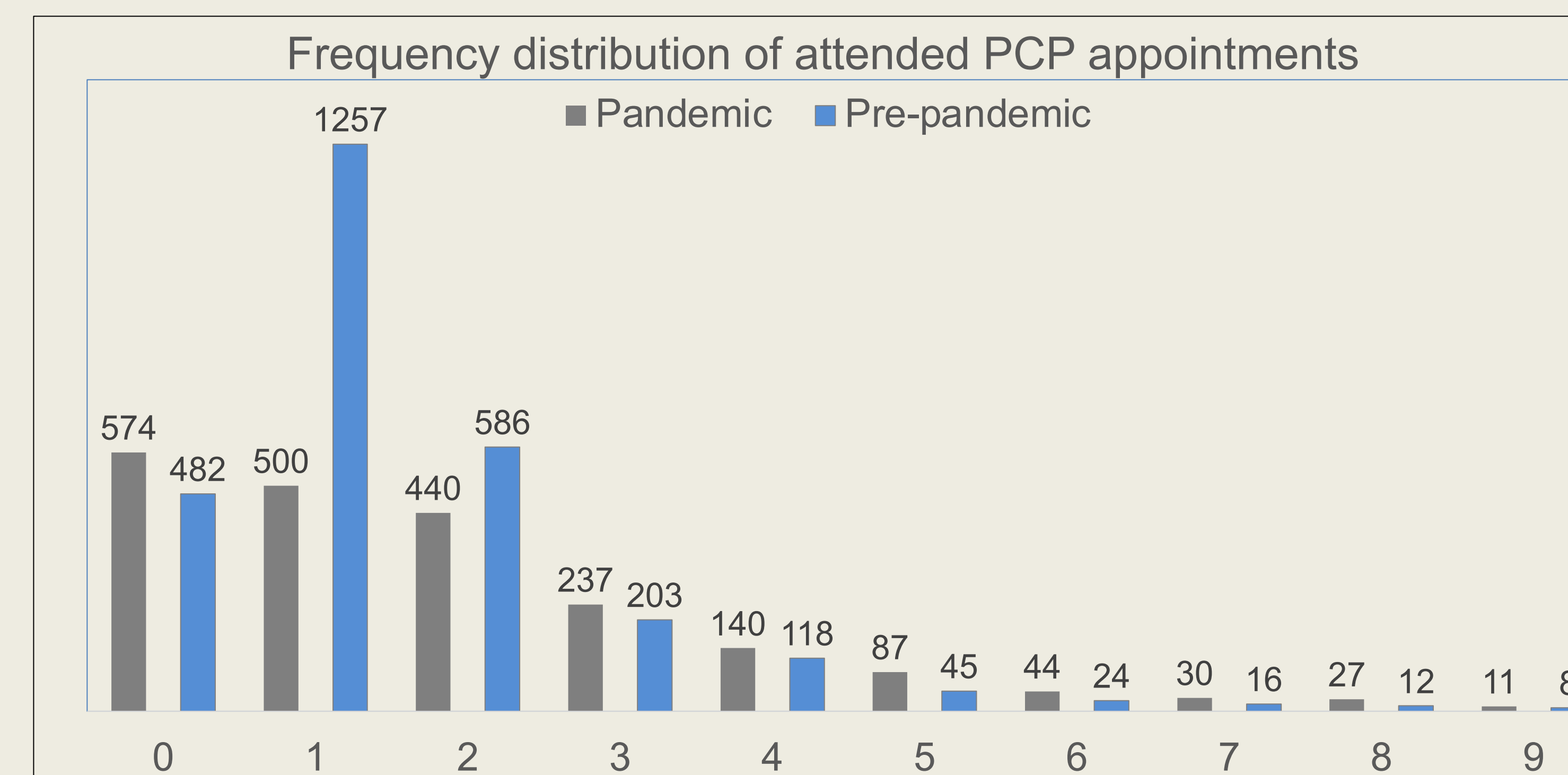
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## RESULTS

- The pandemic cohort attended less PCP appointments (mean 1.56 vs. 2.56; p<0.001) and were more likely to be younger (mean 61.9 vs. 62.9; p<0.001), female (12.5% vs. 9.5%; p=0.002), married (54.9% vs. 50.6%; p=0.003), or <50% service-connected disability/lower priority group
- The unadjusted odds ratio was 0.174 (95% CI: 0.154-0.202) for screening uptake in the pandemic
- ADI was inversely correlated with screening uptake (p=0.034)

**Table 1a/1b.** Binomial logistic regression & factors associated with uptake. Bolded terms represent statistically significant findings at an alpha of 0.05. age, race/ethnicity, marital status, PCP Appts., and ADI

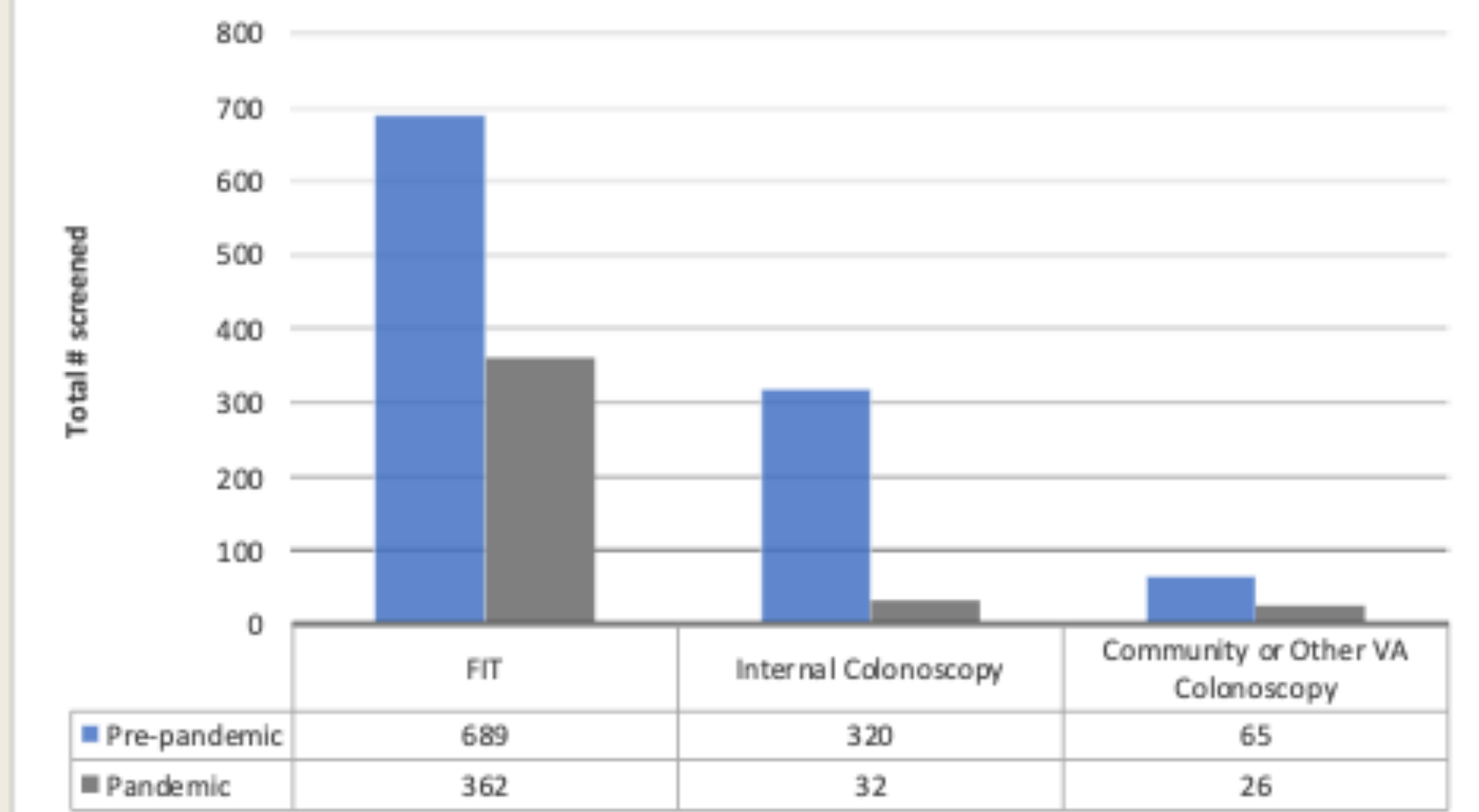
	Adjusted OR 95% CI	P-value	Screened	Unscreened
Cohort - Pandemic	<b>0.154-0.204 (0.178)</b>	<0.001		
Marital Status - Married	0.978-1.291	0.099		
Race/Ethnicity - Black/AA NH	<b>0.691 – 0.988 (0.826)</b>	0.037		
ADI: Mean (SD)			58.9 (22.7)	60.4 (23.7)
Age			61.2 (8.5)	62.0 (9.0)
Sex: Female			192 (12.9)	355 (10.4)
# PCP Appts.			2.6 (2.4)	1.6 (2.4)



## DISCUSSION

- CRC screening uptake decreased during the pandemic, with some racial disparities noted when controlling for pandemic effects; however, overlapping 95% CI in the unadjusted/adjusted cohort model suggest presence prior to the pandemic
- Mail-out FIT was unable to overcome pandemic-related effects
- Lower ADI was associated with lower CRC screening uptake in both periods, suggesting neighborhood-level disparities are present in the VHA system
- Future work should evaluate factors associated with successful national VHA CRC screening policy translation in the pandemic

## Screening Uptake split by type and cohort



34,307 Pre-pandemic

25,094 up-to-date on CRC screening  
2,706 non-average-risk + 3,354 duplicates

2,134

34,863 Pandemic

24,506 up-to-date on CRC screening  
3,204 non-average-risk + 3,354 duplicates

2,783

## REFERENCES

- Long, M.D., Lance, T., Robertson, D. et al. Colorectal Cancer Testing in the National Veterans Health Administration. *Dis Dis Sci* 57, 288–293 (2012). <https://doi.org/10.1007/s10620-011-1895-4>
- Kind AJ, Jencks S, Brock J, et al. Neighborhood socioeconomic disadvantage and 30-day rehospitalization: a retrospective cohort study. *Ann Intern Med*. 2014;161(11):765-774. doi:10.7326/