Colorectal and Breast Cancer Screening in the U.S. during the COVID-19 Pandemic

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Introduction

- Colorectal (CRC) and breast cancer (BC) are two of the most diagnosed cancers in the United States. They make up an estimated 431,000 new cases and an estimated 96,580 deaths, combined[1].
- Screening for these cancers is essential to diagnosing them early and improving a patient's prognosis.
- Routine cancer screenings were postponed to limit potential spread of the SARS-CoV2 virus[2].
- Current research examining the effect of the COVID-19 pandemic on CRC and BC screening is limited to specific methods or is within a narrow time frame.

Objectives

- To analyze how the rates of overall CRC and BC screening varied between 2019 through 2020; and, to determine how both rates varied across patient populations.

Methods

- Selecting our cohort:

Sourced CRC and BC screening claims data from the OPTUM® claims database

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Identified 8,656,406 eligible* CRC screening and 5,116,717 eligible BC screening patients in 2019 through 2020

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Determined screening rate per quarter:

$$\frac{\text{Nº screenings per quarter}}{\text{Nº eligible patients per quarter}}$$

* Eligibility was defined as patients fully insured during an entire quarter and eligible for screening according to the American Cancer Society: ages 51 - 75 for CRC and women ages 46 - 74 for BC.

Performed the following statistical tests:

- Cochran-Armitage trend test to determine the significance of the change in screening rate over time.
- Kruskal-Wallis test to compare the screening rates of specific quarters.

Results: Colorectal Cancer Screening

- We observed a significant declining trend in the overall CRC screening rates from 2019 Q1 to 2020 Q2 over six quarters ($p<0.001$). **Fig.1 (A)**
- We observed a 47% decrease in overall CRC screening in Q2 2020 compared to Q4 2019 ($p<0.001$). **Fig.1 (A) ***
- We also observed a significant declining trend for colonoscopy, stool-based CRC screening tests, sigmoidoscopy, and CT Colonography over the same period. **Fig.1 (B-E)**
- When stratifying the data by race, the declining trend remained consistent and significant across Asian, Black, Hispanic, and White patients for overall CRC screening. **Fig.2**

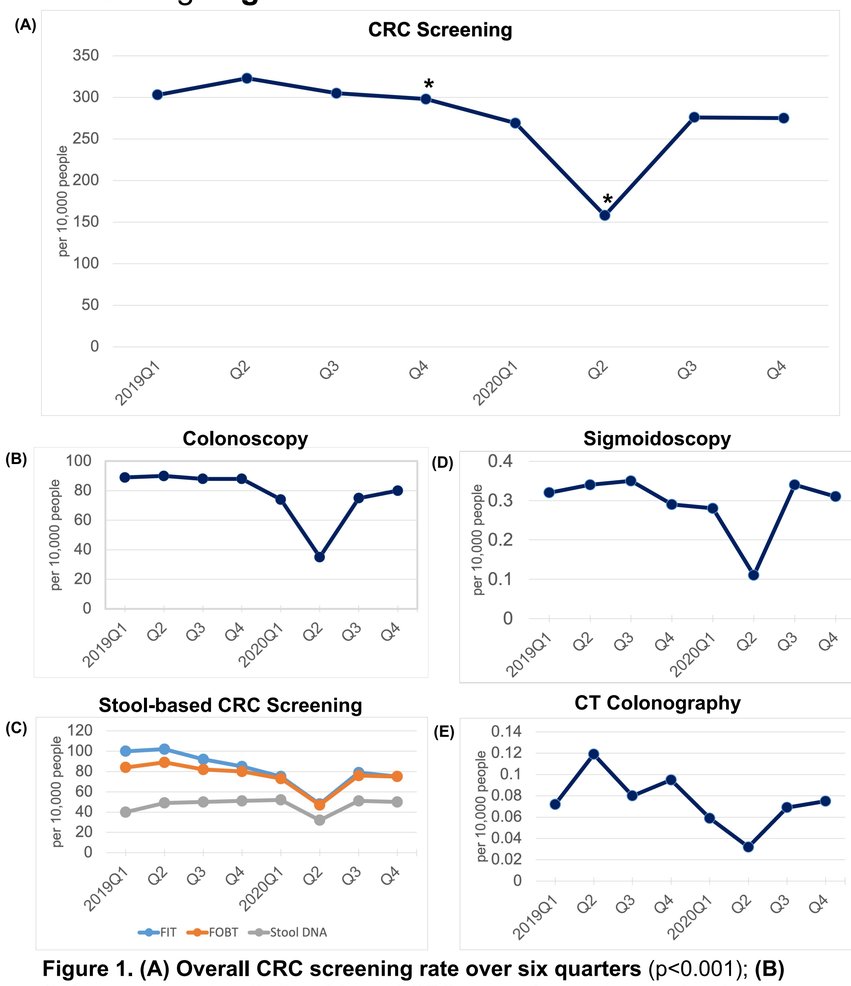

Figure 1. (A) Overall CRC screening rate over six quarters ($p<0.001$); **(B) Colonoscopy rate; (C) Stool-based CRC screening tests rate**: fecal immunochemical test (FIT), fecal occult blood test (FOBT), and stool DNA test ($p<0.001$ for all); **(D) Sigmoidoscopy rate** ($p=0.0035$); **(E) CT Colonography rate** ($p=0.0047$)

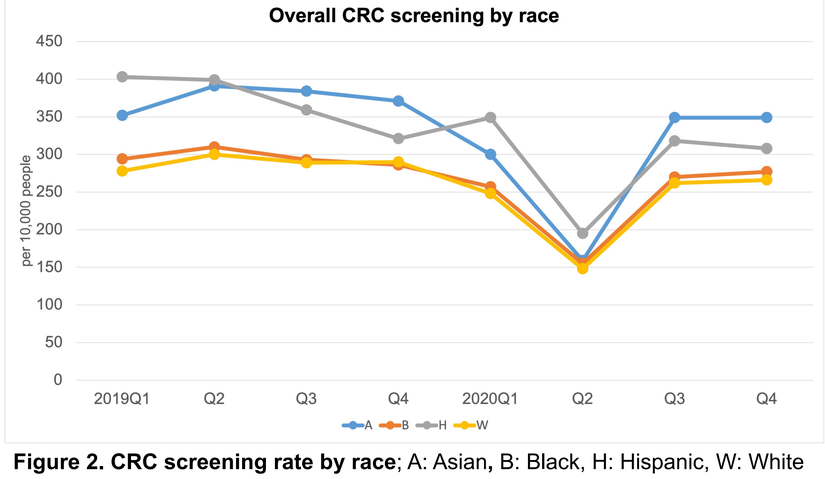

Figure 2. CRC screening rate by race; A: Asian, B: Black, H: Hispanic, W: White

Results: Breast Cancer Screening

- We observed a significant declining trend in the overall BC screening rates from 2019 Q1 to 2020 Q2 over six quarters ($p<0.001$). **Fig.3**
- We observed a 50% decrease in overall BC screening in Q2 2020 compared to Q4 2019 ($p<0.001$). **Fig.3 ***
- When stratifying the data by race, the declining trend remained consistent across Asian (A), Black (B), Hispanic (H), and White (W) patients for overall BC screening ($p<0.001$). **Fig.4**

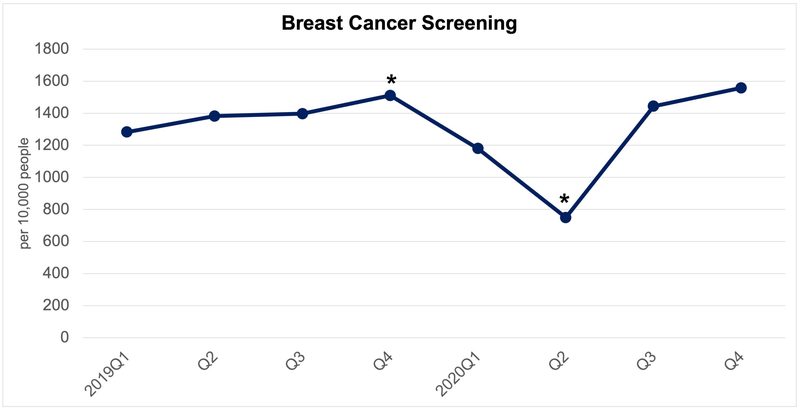

Figure 3. Overall BC screening rate over six quarters ($p<0.001$)

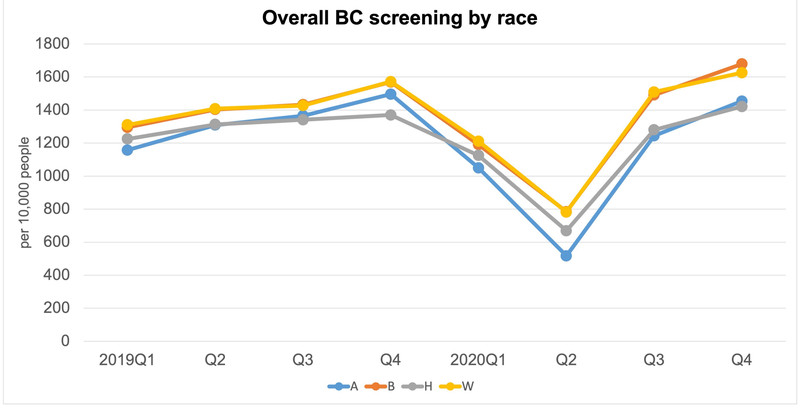

Figure 4. BC screening rate by race; A: Asian, B: Black, H: Hispanic, W: White

Conclusions

- There was a significant decrease in overall CRC screening, each CRC screening modality, and BC screening from Q1 2019 through Q2 2020 across the United States.
- We also observed a decrease in screening rates by approximately 50% during Q2 2020 for BC and CRC.
- When stratifying the data by race, the declining trend remained consistent across patient races for overall CRC screening, each CRC screening modality, and BC screening.

References

1. "Common Cancer Types." *National Cancer Institute*, National Cancer Institute, 22 Apr. 2021, www.cancer.gov/types/common-cancers.
2. Kaufman, Harvey W., et al. "Changes in the number of US patients with newly identified cancer before and during the coronavirus disease 2019 (COVID-19) pandemic." JAMA network open 3.8 (2020): e2017267-e2017267.