Adherence to Breast, Colorectal, Lung, Prostate, and Cervical Cancer Screening Guidelines in a Large Commercial and Medicare Advantage Plan

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INTRODUCTION

- Late-stage cancer diagnoses often result in suboptimal clinical outcomes and high healthcare costs.[1]
- Cancer screening tests can help detect cancer at an earlier stage, when it may be easier to treat or cure.
- Current single-cancer screening tests are recommended by the United States Preventive Services Task Force (USPSTF)[2] for five cancer types: breast, bowel, cervical, lung, and prostate (on an individual basis).
- Examining screening disparities among population subgroups is crucial for planning public health interventions to increase screening uptake, reduce cancer morbidity and mortality, and advance toward Healthy People 2020 goals,[3] which are to "achieve health equity, eliminate disparities, and improve the health of all groups."
- Existing research on screening practices and trends is mostly limited to self-reported survey data, which may not accurately reflect real-world adherence to guideline-based cancer screening recommendations.[4-5]

OBJECTIVE

- This study aims to assess cancer screening rates and trends in the United States over time among individuals for whom screening is recommended by the USPSTF.

REAL-WORLD ADHERENCE TO GUIDELINE-RECOMMENDED SCREENING REMAINS SUBOPTIMAL, WITH NOTABLE HEALTH DISPARITIES IN CANCER SCREENING FOR EARLY DETECTION.

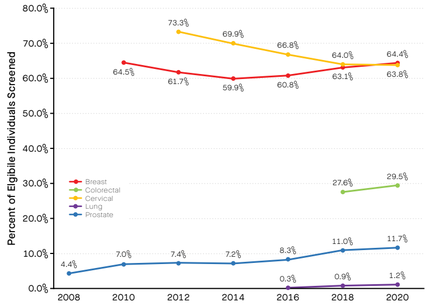
- **Table 2** presents the number of eligible individuals and the proportion of those screened, by cancer type, in the most recent time period in 2020 (up to February 29, 2020).
  - Cancer screening rates were 64.4%, 29.5%, 63.8%, 1.2%, and 11.7% for BC, CRC, CC, LC, and PC, respectively (**Table 2**).

Table 2. Eligible Screening Cohorts by Cancer Type in 2020

Cancer Screening Type	Breast	Colorectal	Cervical	Lung	Prostate
Time Period	3/1/18-2/29/20	3/1/10-2/29/20	3/1/15-2/29/20	3/1/19-2/29/20	3/1/19-2/29/20
Eligible, N	1,620,588	2,763,736	1,371,506	4,910,050	1,126,249
Screened, n (%)	1,043,099 (64.4%)	813,890 (29.5%)	874,697 (63.8%)	60,349 (1.2%)	131,787 (11.7%)

- **Figure 2** presents the cancer screening compliance rates for each cancer type over time.
  - In general, cancer screening rates did not significantly change over time.
  - A decreasing trend was observed for cervical cancer (2008: 73.3%; 2020: 64.4%)
  - Screening rates for prostate cancer increased from 4.4% in 2008 to 11.7% in 2020.
  - Lung cancer screening rates remained low from 2016 to 2020 (below 1.2%).

Figure 2. Percent of Eligible Individuals Screened Over Time by Cancer Type (2008-2020*)



*The time points for which screening adherence was assessed varied by cancer type due to an extended look-back period (i.e., 10 years for colorectal cancer screening, 5 years for cervical cancer screening), date of USPSTF recommendation implementation, or the availability, or lack thereof, of CPT codes for specific screening modalities.

- For the most recent time points (2016, 2018, 2020), Hispanics (except for CC in 2016) and individuals residing in the West had consistently lower screening rates compared to the overall population (all cohorts, p<0.001).
- In 2020, the cancer screening prevalence varied by race, primary insurance type, and geographic region (**Figures 3a-c**).
  - Black/African Americans had the lowest screening rates for colorectal and cervical cancer, while Hispanics had the lowest screening rates for breast, lung, and prostate cancer (all cohorts, p<0.001).
  - Cancer screening rates were higher among those with Medicare Advantage for lung and prostate cancer, and higher among those with commercial insurance for cervical cancer (all cohorts, p<0.001).
  - Cancer screening rates were lower among individuals residing in the West across all five cancers (all cohorts, p<0.001).

Figure 3a. Prevalence of Cancer Screening by Race in 2020

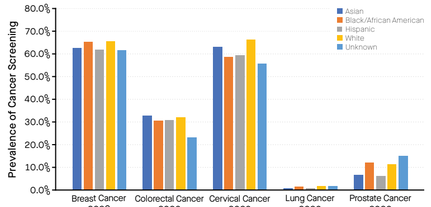
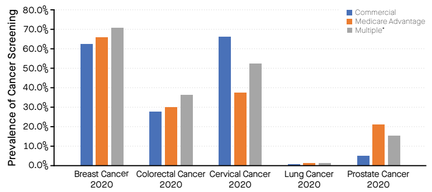
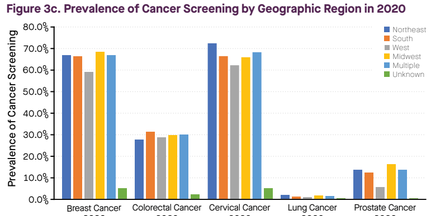


Figure 3b. Prevalence of Cancer Screening by Primary Insurance in 2020



*Individuals had both commercial and Medicare insurance eligibility during this time period.

Figure 3c. Prevalence of Cancer Screening by Geographic Region in 2020



CONCLUSIONS

- Real-world adherence to USPSTF-recommended cancer screening is generally lower than self-reported adherence.
- Overall, patient compliance to cancer screening is suboptimal, despite longstanding recommendations for screening, as screening rates have remained relatively unchanged over time or very low (e.g., lung cancer screening).
- Certain screening disparities exist, however, particularly among Hispanics and those residing in the West.
- Efforts to increase screening uptake and reduce cancer health disparities remain critical.

METHODS AND SUPPORTING DATA

Data Source and Design

- A cross-sectional, retrospective claims analysis was conducted in two-year intervals from January 1, 2008 – February 29, 2020 (see the 2018 cohort example in **Figure 1**), using Optum's de-identified Clinformatics® Data Mart (CDM) Database, which includes commercially insured and Medicare Advantage members.

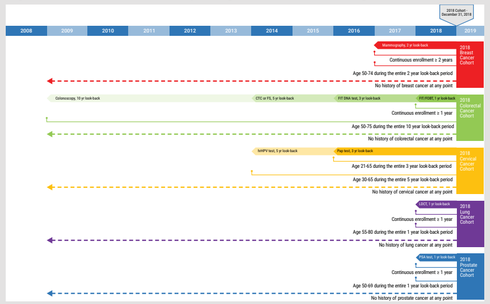
Population and Inclusion Criteria

- Members meeting the following criteria were included in this analysis:
  - Age and/or sex criteria as detailed in the USPSTF recommendations[2] for breast (BC), colorectal (CRC), lung (LC), prostate (PC), and cervical (CC) cancer screening for the entire look-back period, which varies based on the screening modality (**Table 1**).
    - Additional USPSTF criteria not available in the database were not included (e.g., for lung cancer screening: those with a 30 pack-year smoking history and currently smoke or quit within the past 15 years).
  - Continuous insurance eligibility.
    - Duration varies based on cancer specific screening interval; for cancers with multiple screening modalities, this will be based on the shortest screening interval.
  - No history of the specific cancer being screened for prior to each time point.

Analyses

- Cancer screening prevalence, or the proportions of eligible individuals who received ≥1 screening modality, was assessed using a cross-sectional approach at multiple time points from January 2008 to February 2020 for all relevant screening tests within the 5 cancer types.
- ICD-9/10 and CPT codes for screening-specific procedure codes were used to identify those who received cancer screening; stand-alone diagnostic procedure codes were not included.
- Subgroup analyses of cancer screening rates by race, primary insurance type, and geographic region were also conducted.

Figure 1. Cross-Sectional Study Design: 5 Cancer Screening Cohorts in 2018



Abbreviations: CTC, computed tomography colonography; FIT, fecal immunochemical test; FOBT, fecal occult blood test; FS, flexible sigmoidoscopy; hrHPV, high-risk human papillomavirus; LDCT, low-dose computed tomography; PSA, prostate-specific antigen; yr, year

Table 1. USPSTF Cancer Screening Recommendations[2]

Cancer Type	Description	Grade
Breast	Biennial screening mammography for women aged 50 to 74 years.	B
Colorectal	Screening for colorectal cancer in all adults aged 50 to 75 years. • High-sensitivity gFOBT or FIT every year • sDNA-FIT every 1 to 3 years • CT colonography every 5 years • Flexible sigmoidoscopy every 5 years • Flexible sigmoidoscopy every 10 years + FIT every year • Colonoscopy screening every 10 years	A
Cervical	• Women aged 21 to 29 years: Screening every 3 years with cervical cytology alone. • Women aged 30 to 65 years: Screening every 3 years with cervical cytology alone, every 5 years with high-risk human papillomavirus (hrHPV) testing alone, or every 5 years with hrHPV testing in combination with cytology (cotesting).	A
Lung	Annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B
Prostate	For men aged 55 to 69 years, the decision to undergo periodic prostate-specific antigen (PSA)-based screening for prostate cancer should be an individual one.	C

Abbreviations: CT, computed tomography; FIT, fecal immunochemical test; gFOBT, guaiac fecal occult blood test

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