

WHITE PAPER

Disparities in Breast Cancer Screening Lead to Poor Outcomes for Disadvantaged Americans

Executive Summary

Breast cancer screening is essential to early diagnosis and treatment which can improve outcomes and significantly reduce mortality. The [American Cancer Society](#) (ACS) reports 67% of women aged 40 and older had a breast cancer screening in the past two years,¹ but these rates vary across populations by race and ethnicity, age group, region, income level, and type of insurance.

This study expands on the ACS report by evaluating 7-year trends (2017-2023) in breast cancer screening rates across four major insurance types in the United States (traditional Medicare Fee-for-Service, Medicare Advantage, commercial, and Medicaid), using the lookback timeframe (27 months) and age range (50-74) as defined in the commonly used Breast Cancer Screening (BCS) quality measure utilized by the Centers for Medicare & Medicaid Services (CMS) in the Medicare Five-Star Rating program and other value-based payment programs.

Breast cancer screening rates are consistently lowest (40-55%) among women with Medicaid across income, education, English proficiency, and household composition. Across all payer types, the greatest disparities in breast cancer screening are by income. English proficiency, education, and living alone have relatively smaller, but consistent, influence on breast cancer screening rates. Efforts should be made to explore barriers to breast cancer screening among women with Medicaid.



Breast cancer screening rates are consistently lowest (40-55%) among women with Medicaid



Introduction

Health equity – defined as achieving the highest level of health for all people – is a national priority. Quality measures are a way to incentivize and hold providers and healthcare payers – private commercial insurance companies as well as Medicare and Medicaid programs – accountable for delivering efficient, evidence-based, high-quality, and cost-effective care.

The Healthcare Effectiveness Data and Information Set (HEDIS®) coordinated by the National Committee for Quality Assurance (NCQA) is a set of performance measures used widely in the United States to evaluate health plan and provider performance and support quality improvement, pay for reporting, public reporting initiatives, and more recently, improving health equity.

Preventative screenings have been proven to reduce and slow the progression or worsening burden of illness related to chronic diseases like cancer. A key HEDIS quality measure is breast cancer screening (BCS), which calculates the percent of eligible women between 50-74 years of age who received a mammogram to screen for breast cancer.² Breast cancer is the most common cancer among women in the United States, except for skin cancers.³ It accounts for about 30% of new female cancers each year³ and is the second leading cause of cancer death in women.⁴

Breast cancer diagnosis rates have increased by about 1% every year over the decade from 2012-2021, impacting more than 13% of all women with 2.3% dying from breast cancer representing nearly 43,000 deaths in the United States in 2024.⁵ The median age of diagnosis is 62.⁵

Breast cancer screening is essential to early diagnosis and treatment which can improve outcomes and significantly reduce mortality. Early detection leads to a greater range of treatment options and reduces the need for more aggressive treatment like chemotherapy. Screening for breast cancer results in better survival rates because early-stage cancers are generally smaller and less likely to have spread. For example, the five-year survival of breast cancer is over 99% for breast cancer diagnosed at an early (localized) stage but drops to only 32% for later-stage disease.⁵

The American Cancer Society (ACS) reports 67% of women aged 40 and older had a breast cancer screening in the past two years,¹ but these rates vary across populations by race and ethnicity, age group, region, income level, and type of insurance. For example, while Black women have 5% lower breast cancer incidence than White women, they have 38% higher mortality, largely because of later diagnosis and less access to appropriate treatment.¹ On April 30, 2024, the [United States Preventive Services Task Force](#) (USPSTF) revised their breast cancer screening recommendations to biennial mammography beginning at age 40 years.⁶

Objective

This study expands on the ACS report by evaluating 7-year trends (2017-2023) in breast cancer screening rates across four major insurance types in the U.S. (traditional Medicare Fee-for-Service, Medicare Advantage, Commercial, and Medicaid), using the lookback timeframe (27 months) and age range (50-74) included in the commonly used HEDIS Breast Cancer Screening quality measure, including appropriate exclusions.

Data Sources

Inovalon is a leading provider of cloud-based SaaS solutions empowering data-driven healthcare across the care continuum. The company partners with life sciences companies, health plans, providers, and specialty pharmacies to improve healthcare outcomes and economics. Inovalon has the industry's largest primary source dataset, which enables customer success through enhanced connectivity and data-driven insights.

100% Medicare Fee-for-Service Claims for Parts A, B, and D

Inovalon has direct access to 100% of traditional Medicare Fee-for-Service (FFS) enrollment information and claims for Parts A, B, and Part D Prescription Drug Event (PDE) data for all Part D plans under a research data use agreement (DUA) with CMS. The DUA allows for collaboration with healthcare organizations to utilize the in-house FFS claims data to further Medicare research in the domains of access to care, healthcare resource utilization, and quality of care.

This analysis utilized the 100% sample which includes all Part A/B medical encounters for Medicare FFS beneficiaries – including hospital claims, emergency department (ED) visits, skilled nursing facility (SNF) stays, hospital outpatient services/ambulatory surgical center services, physician office visits (including physician administered treatments), home health services/durable medical equipment, and hospice care – and the 100% Part D PDE file that contains all retail, mail-order, and specialty pharmacy encounters for this population. The Medicare Master Beneficiary Summary File (MBSF) was used to determine beneficiary monthly eligibility for Part A/B services, patient demographics, low-income subsidy/dual eligible status, disability status, and if applicable, date of death.

Inovalon Medical Outcomes Research for Effectiveness and Economics Registry (Inovalon MORE² Registry®)

The Inovalon MORE² Registry® is a [real-world dataset](#) that includes medical and pharmacy closed claims, primary sourced from over 160 health plans and statistically de-identified. The MORE² Registry contains data pertaining to over 1.1 million physicians, 686,000 clinical facilities, 398 million unique lives, and more than 87 billion medical events.

The data are longitudinally matched at the patient level and cover three major U.S. private payer lines of business including commercial (25.2% of market), Medicare Advantage (MA) (18.2% of market), and managed Medicaid (64.4% of managed Medicaid market; more than 80% of state Medicaid is managed). All 50 states and D.C. are represented. The database is updated monthly allowing for current trend analyses on outcomes of interest based on recent performance.

Inovalon Social Drivers of Health (SDOH) Data Warehouse

Inovalon's SDOH data warehouse comprises information aggregated from a wide range of public and proprietary commercial data sources. These include healthcare provider shortage areas, Core-Based Statistical Areas (CBSA), Rural-Urban Commuting Areas (RUCA), low food access areas, cost of living indexes, and SDOH data aggregated and sourced from Acxiom, Inc. (e.g., income, education, vehicle ownership, English language proficiency, living alone, etc.) derived from multiple, comprehensive individual and household databases (e.g., public records such as government information, self-reported data, buying activity, financial behavior) and the American Community Survey (ACS) of the U.S. Census.

The SDOH data are linked to the Medicare Advantage, commercial, and Medicaid patients at the 9-digit ZIP code level and to Medicare FFS beneficiaries at the 5-digit ZIP code level (required since CMS does not provide street addresses for FFS). Due to the ZIP code level link rather than individual patient-level link, these social factors should be interpreted at the neighborhood level. For example, this study compared women who reside in neighborhoods where more than half of residents have a bachelor's degree versus women in neighborhoods where less than half the residents have a bachelor's degree as a proxy for individual's education.

Research has demonstrated that socioeconomic and community characteristics aggregated at the near-neighborhood level are close proxies to the individuals living in those areas and are highly predictive of health behaviors and health outcomes, thus data are linked to SDOH at the most granular level possible. To accomplish this, Inovalon utilizes an internal exception process to access the identified data for study patients in order to link in SDOH data using patient address. The final analytic file is then de-identified using the HIPAA Safe Harbor Method for data de-identification found at [Section 164.514 of the HIPAA Privacy Rule](#), promulgated pursuant to the Health Insurance Portability and Accountability Act of 1996 ("HIPAA Privacy Rule").



Methods

Inovalon conducted a descriptive retrospective analysis. The study period included data from October 1, 2015, through December 31, 2023, in order to calculate breast cancer screening rates for the 7-year period from 2017-2023. Breast cancer screening rates were calculated for each of four major payer types in the U.S. (Medicare FFS, MA, commercial, and Medicaid). Rates within payer type were further stratified by patient characteristics including age group, race/ethnicity, income, education, English proficiency, living alone, and region/state.

The eligible population included in the measure denominator were females aged 50-74. Members were required to be enrolled in the same health plan during the measurement year observation period, with no more than a 45-day gap in medical insurance coverage for those covered by commercial and Medicare and no more than a 30-day gap in medical coverage for those covered by Medicaid.

The observation period included any time on or between October 1 two years prior to the measurement year and December 31 of the measurement year (consistent with the measure specification and with the USPSTF recommendation of screening every two years). Members were excluded from the eligible population if they were in hospice; were aged 65 and older and enrolled in an Institutional Special Needs Plan (I-SNP) any time during the measurement year and living in a long-term care institution; or received a bilateral mastectomy any time during their available medical history.



Results

Age Group and Payer

Overall, breast cancer screening rates vary by payer and age group (Figure 1). Women with Medicaid insurance have the lowest screening rates in all age groups, particularly among women aged 65-74 where fewer than four of every 10 eligible females get screened according to recommended guidelines. In 2023, the disparity gap in screening rates for women aged 50-64 covered by Medicaid was 18.9 percentage points compared to those covered by commercial insurance and 13.5 percentage points lower than those covered by MA. Rates are significantly lower overall among women aged 40-49. Note, women aged 40-49 are only included in Figure 1 for baseline information on that age group only; all other results follow the current quality measure definition that includes women aged 50-74. It will be interesting to compare rates among women the 40-49 age group in years prior to the revised USPSTF recommendation in April 2024 versus screening rates in this age group in years following the new recommendation to track the impact on behaviors.

The 7-year lookback period included data collected during the COVID-19 pandemic, when we saw decreased breast cancer screening rates. Due to the 27-month lookback period, COVID-19 related decreases in screening rates are apparent in 2020 and 2021 across all payer types. Screening rates recovered from the decreases in 2020-2021, with rates increasing in 2022-2023 across all age groups and payers, but relatively faster among Medicare FFS and commercially-insured women.

Screening rates are higher in 2023 compared to 2017 across most payers and age groups but the disparities remained relatively constant (Appendix: Table 1).



**Less than 4 in 10
eligible women with
Medicaid receive
guideline-recommended
screenings**

For example, among women aged 50-64, BCS rates increased by 2.6 percentage points in those insured by both commercial and Medicaid from 2017-2023, but rates were 18.9 percentage points higher in 2017 among women with commercial health insurance compared to those covered by Medicaid (67.3% vs 48.4%) and were still 18.9% higher in 2023 (69.9% vs 51.0%) in that age group.

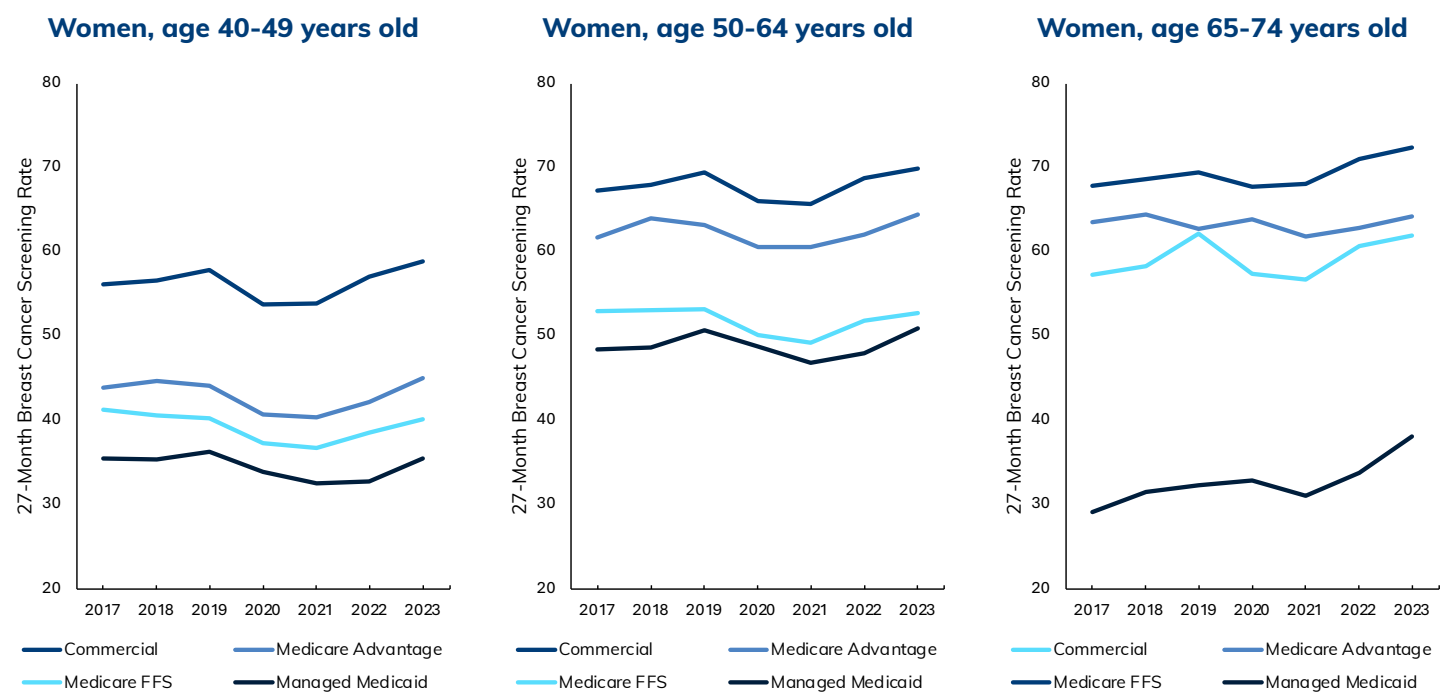
In that same 50-64 age group, rates were 22% higher in 2023 among women covered by MA (64.5%) compared to those covered by Medicare FFS (52.8%), and while rates increased by 2.8 percentage points among those in MA from 2017-2023, rates actually declined by 0.2 percentage points among those in Medicare FFS aged 50-64 (Table 1).

Among women aged 65-74, BCS rates are highest in those covered by Medicare FFS (72.4%) followed by MA (64.3%) and commercial (61.9%). Rates are significantly lower among the Medicaid population (38.1%) in the 65-74 age group (Table 1).

In the oldest age group evaluated, 75+, rates are significantly lower as expected, ranging from 53.2% Medicare FFS, 32.7% MA, 27.0% commercial, and 10.7% Medicaid in 2023 (Table 1).

As of April 2024, women aged 40-49 are recommended to receive BCS. In 2023, BCS rates in women 40-49 ranged from 58.9% of commercially-insured women, 45.0% of Medicare beneficiaries in a MA plan, and 40.1% of Medicare FFS, to a low of only 35.5% of those insured by a Medicaid plan (Table 1).

Figure 1: Breast Cancer Screening Rates by Age Group and Payer



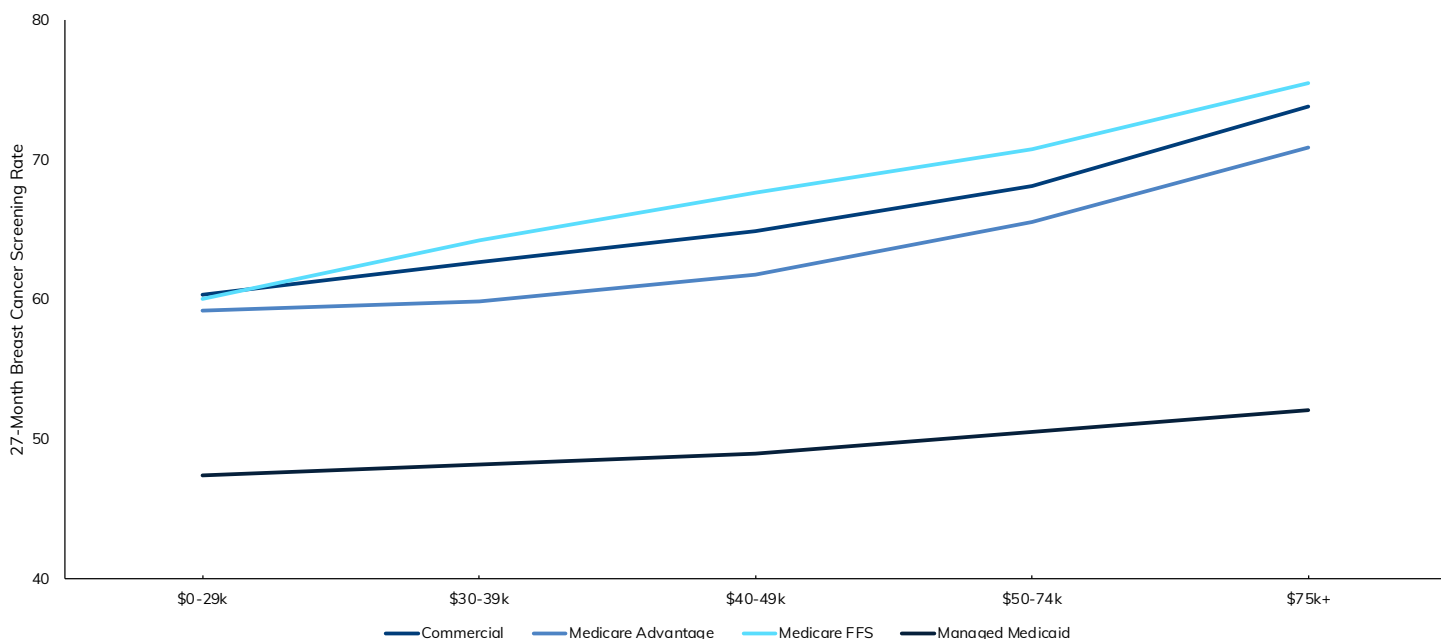
Median Annual Household Income

Income is a key driver of likelihood of receiving breast cancer screening with rates increasing steadily as income increases. Focusing on the age group aged 50-74 included in the HEDIS quality measure, rates of BCS are highest in the Medicare FFS population and lowest in the Medicaid insured population (Figure 2). The association of higher income and higher screening rates is more apparent in commercial and Medicare-insured women while rates are relatively flat across income levels in the Medicaid insured population.

In 2023, rates were similar for Medicare FFS (60.0%), commercial (60.3%), and MA (59.2%) insured females at the lowest level of income (<\$30K per year) but were much lower for those covered by Medicaid (47.4%) (Table 2).

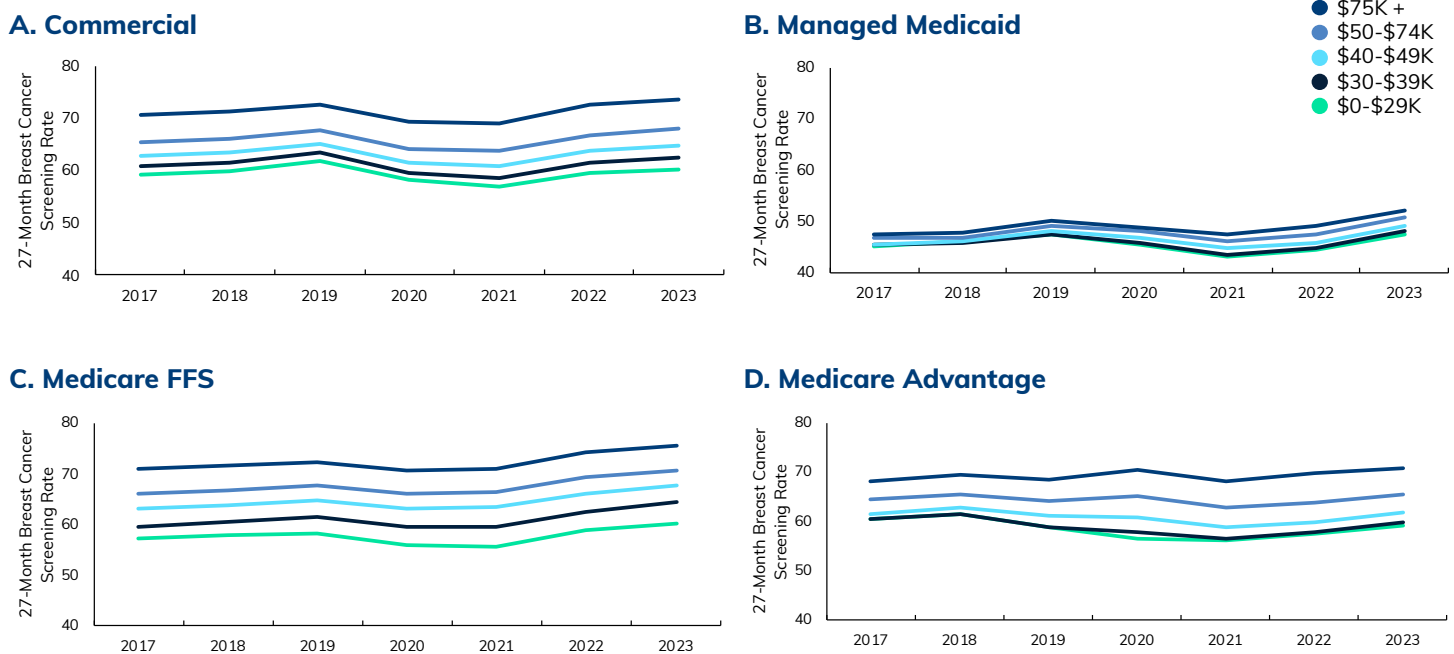
Larger disparities emerge as income levels increase. At the highest level of income (\$75K and above), rates are highest in Medicare FFS (75.5%), commercial (73.8%), and MA (70.9%), compared to only 52.1% in the Medicaid population which means up to 31% fewer women are getting screened appropriately.

Figure 2: Breast Cancer Screening Rates in 2023 by Income Level and Payer
(Women Aged 50-74)



The trend of higher rates of BCS at higher levels of incomes holds across all years from 2017-2023 and across all types of insurance (Figure 3). The disparities by income level are smallest in those covered by Medicaid (4.7 percentage point disparity from lowest to highest income level) and highest in those covered by Medicare FFS (15.5 percentage point disparity from lowest to highest income level) (Table 3).

Figure 3: Breast Cancer Screening Rates by Income Level and Payer (Women Aged 50-74)



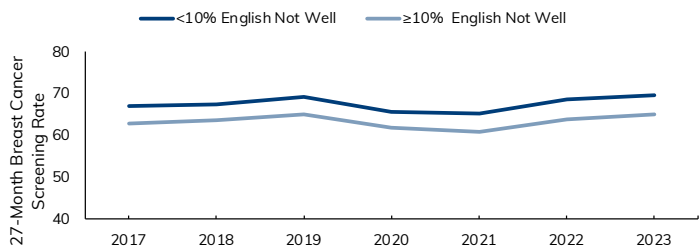
English Language Proficiency

Similar to income, English language proficiency is a key driver of receiving breast cancer screening. Figure 4 shows BCS rates by payer and year stratified by those who live in a neighborhood where less than 10% of the population speaks English not well or at all (better language proficiency), versus those who live in a neighborhood where 10% or more of the population do not speak English well or at all (limited English proficiency). BCS rates are lower in neighborhoods with low English language proficiency for all women except those covered by Medicaid, where the opposite trend is present.

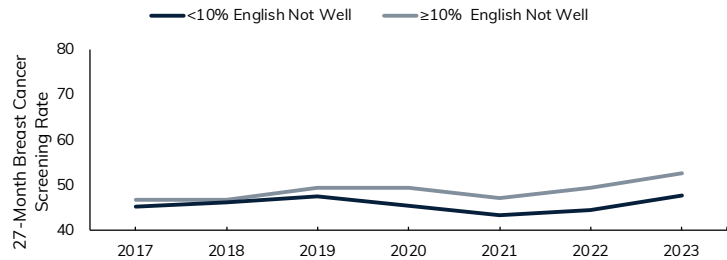
Data clearly shows the impact of COVID-19 years with sharp declines in BCS rates in 2020 and 2021. 2021 shows a larger drop because BCS rates look back 27 months per recommended screening at least every 2 years). BCS rates among women with low language proficiency showed a smaller COVID-19 decline in those covered by Medicaid and MA (2.2 and 2.4 percentage points from 2019 to 2021 respectively). The largest COVID-19 declines were in women covered by commercial and Medicare FFS insurance (declines of 4.1 and 3.7 percentage points, respectively) (Table 4).

Figure 4: Breast Cancer Screening Rates by English Language Proficiency and Payer (Women Aged 50-74)

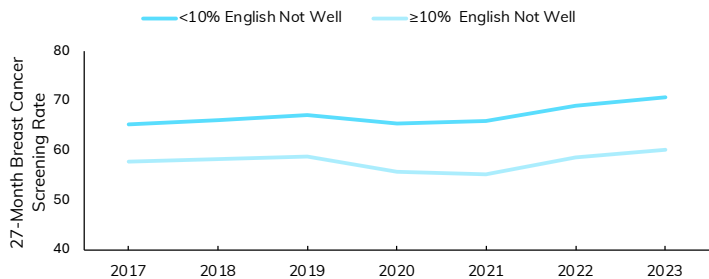
A. Commercial



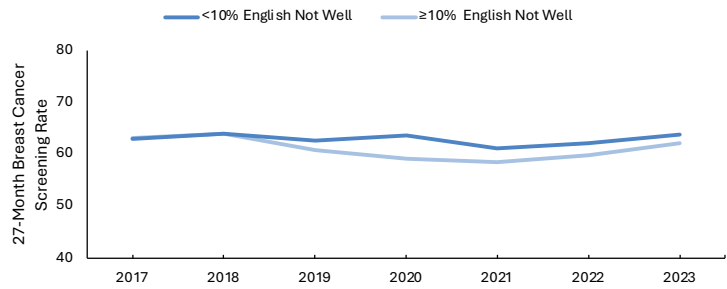
B. Managed Medicaid



C. Medicare FFS



D. Medicare Advantage



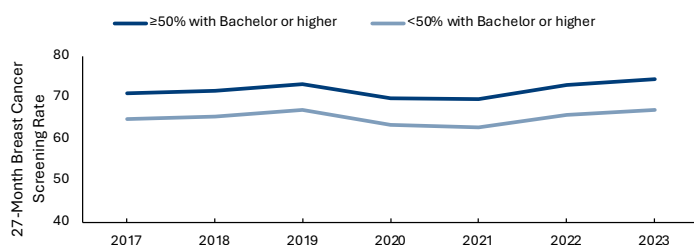
Education Level

Living in a neighborhood where less than half the population has a bachelor's degree or higher (low education status) also impacts likelihood of BCS (Figure 5). Women living in neighborhoods with lower levels of education are less likely to get screening. Education level has the smallest impact on Medicaid enrollees, but after 2021, a disparity gap between women living in high versus low education communities begins to emerge in that population similar to other payers.

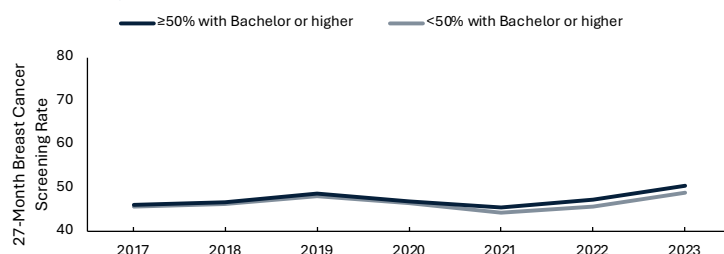
The disparity has been consistently large across the entire time period evaluated for other payers (in 2023, a 7.4 percentage point disparity gap in commercial and Medicare FFS insured women, and 7.0 percentage point gap MA versus 1.6 percentage point gap in Medicaid) (Table 5).

Figure 5: Breast Cancer Screening Rates by English Language Proficiency and Payer (Women Aged 50-74)

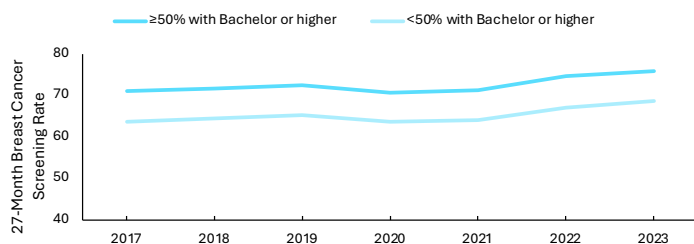
A. Commercial



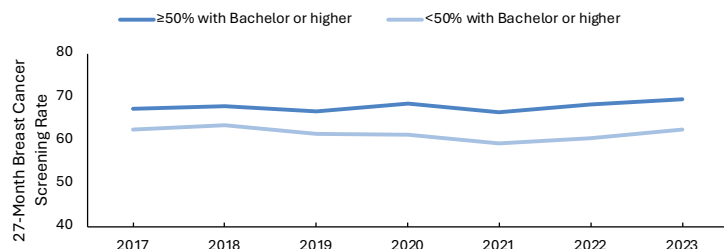
B. Managed Medicaid



C. Medicare FFS



D. Medicare Advantage



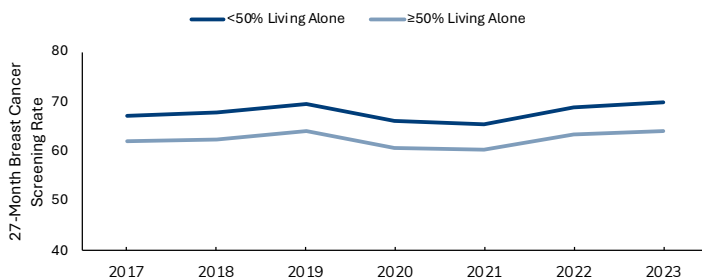
Living Alone

Living alone is a proxy for social isolation and loneliness which is cited as a major social driver of health. Studies have shown loneliness leads to poor health outcomes and even to onset of chronic diseases like dementia and diabetes.⁷ Living in a single person household has a similar negative impact on likelihood of receiving BCS (Figure 6).

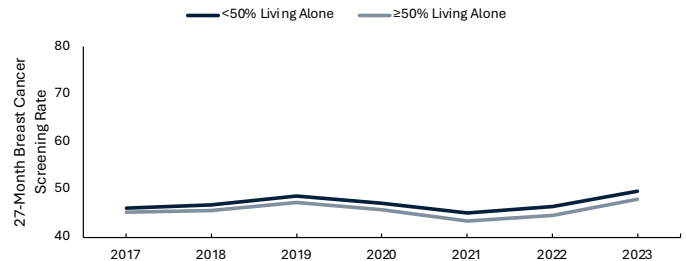
Living alone has the biggest impact on BCS rates in Medicare FFS where there was a 6.8 percentage point disparity gap between living alone versus having social support in 2023. The gap is slightly smaller for women insured by other types of payers – a 5.8 percentage point disparity gap in commercially insured women, 4.9 percentage points in women covered by an MA plan, and a 1.7 percentage point gap in the Medicaid population (Table 6).

Figure 6: Breast Cancer Screening Rates by Living Alone and Payer (Women Aged 50-74)

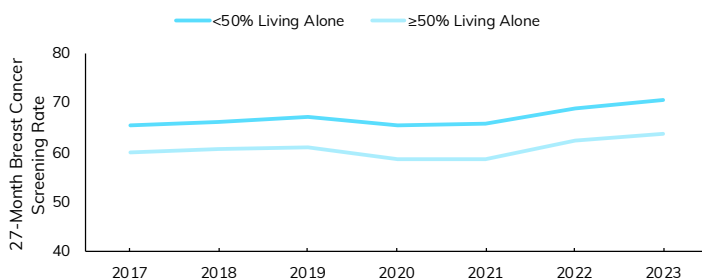
A. Commercial



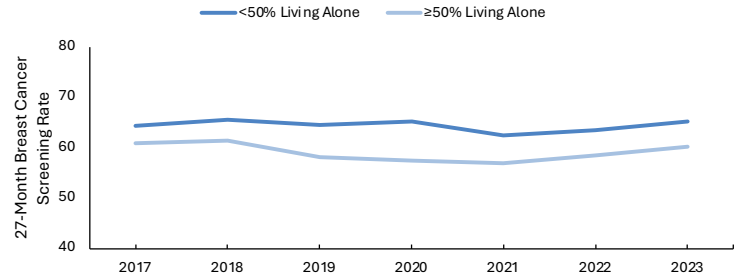
B. Managed Medicaid



C. Medicare FFS



D. Medicare Advantage



State-Level Rates by Type of Insurance (Payer)

The states where breast cancer screening rates are lowest vary based on type of insurance coverage (Figure 7). Across all payers, breast cancer screening rates range from a low of only 5.9% of eligible women covered by Medicaid in Alaska to a high of 78.2% of eligible women covered by a commercial health plan in Massachusetts (Figure 7, Table 7).

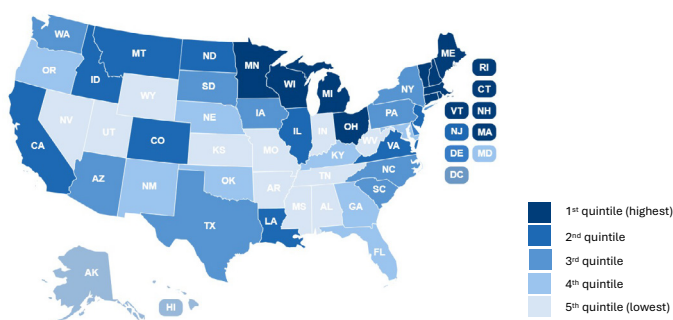
For women aged 50-74 covered by a commercial health plan, screening rates are highest in the Northeast and upper Midwest states, ranging from 78.2% in Massachusetts to a low of 53.9% in Arkansas.

BCS rates for those covered by Medicaid are highest in the Northeast and mid-Atlantic states ranging from a high of 60.8% in New York to a low of only 5.9% in Alaska. The next lowest rate is in Wyoming at only 15.4% of eligible women getting a mammogram.

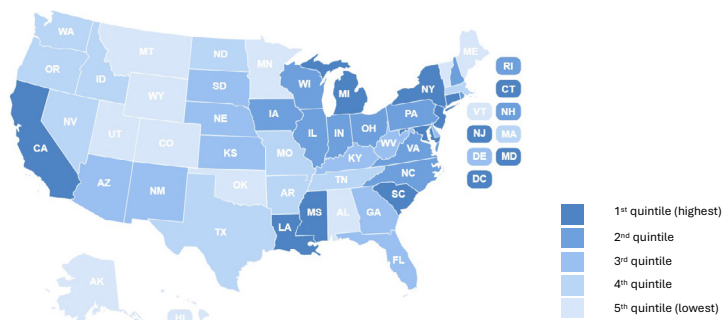
Female Medicare beneficiaries also experience differences in rates of breast cancer screening based on choice of a managed MA plan or Medicare FFS. The highest rates of BCS among Medicare beneficiaries is 77.8% of women in FFS living in Delaware and 76.6% of women in an MA plan living in Iowa. The lowest rates among Medicare beneficiaries are 60.0% in Alaska for FFS versus 20.0% in Alaska for MA.

Figure 7: Breast Cancer Screening Rates by State and Payer (Women Aged 50-74)

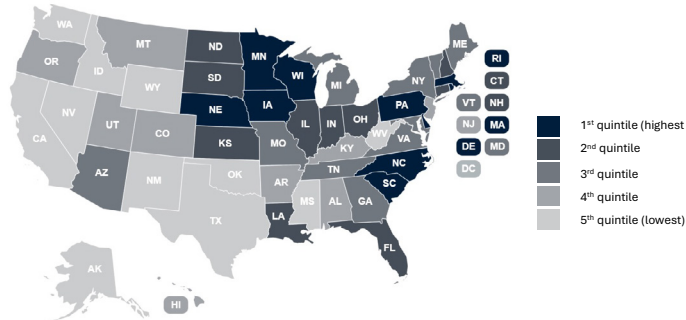
A. Commercial



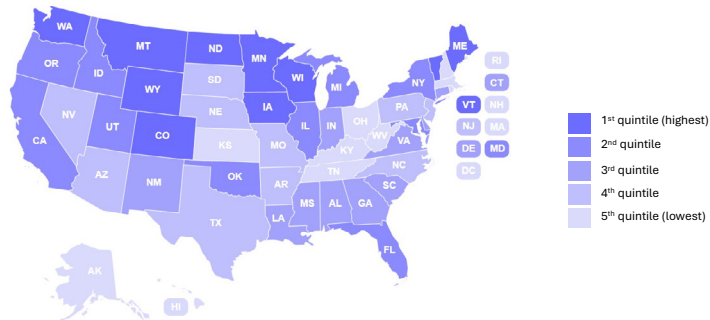
B. Managed Medicaid



C. Medicare FFS



D. Medicare Advantage



Discussion

This study was informed by clinical recommendations for breast cancer screening, which vary by patient age, patient risk for developing breast cancer, and recommending body. The American Cancer Society recommends that women at average risk between 45 and 54 years old receive annual mammograms and women at average risk 55 years and older receive biannual mammograms.⁸ The USPSTF recently updated their recommendations such that women at average risk between 40 and 74 years old are recommended to receive biannual mammograms.⁶ The widely used HEDIS measure calculates the percent of eligible women between 50 and 74 years old who received a mammogram in the previous 27 months.⁹

This study followed the HEDIS quality measure and found breast cancer screening rates varied widely by payer, age, and a broad range of social risk factors. While some studies have included screening rates by payer, age, and select SDOH, this study adds a new level of detail in the intersection between insurance payer and neighborhood-level patient SDOH factors that represent a much more precise assignment based on more than 30 million geographic neighborhoods compared to commonly used Census data or American Community Survey data which represents only 220,000 geographic areas in comparison. This study uniquely explores factors of English proficiency and living alone which are two key social drivers of health.

During the 7-year study period, screening rates declined in 2020 and 2021 due to effects of the COVID-19 pandemic but recovered in 2022 and 2023. Even so, screening rates among every subgroup of patients remain suboptimal, with rates among the most advantaged patients below 80% and rates among less advantaged patients below 50%.

Screening rates in this study were somewhat lower than reported in previous studies,^{1,10} likely due to differences in measurement definitions and populations. A strength of this analysis is utilization of a large, nationally representative, adjudicated claims database covering the four major payors in the U.S. Use of this data source allows for clear identification of an eligible patient population and consistent measurement of the study outcome of receiving recommended screening for breast cancer. Prior reports on breast cancer screening utilized self-report data collected from the National Health Interview Survey,^{1,10} which allows for increased granularity in patient factors (e.g., race/ethnicity, income, education), but is subject to significantly smaller sample size, possible self-selection response bias, recall bias, and social desirability bias, all of which may result in an over-estimation of screening rates.

Overall, the results of this study agree with prior reports that patients with commercial and Medicare insurance have higher screening rates than patients with Medicaid, and that screening rates are higher among women 50 to 74 years old compared to women under 50 and over 74.^{1,9-10} However, the screening rates by payer vary within the 50 to 74 age group. Among women 50 to 64 years old, those with commercial insurance have the highest rates, while among women 65 to 74 years old, women with Medicare FFS have the highest rates.

This analysis is also consistent with previous reports that screening rates increase with higher levels of education and income. By looking at the cross-section of income and payer, this study provides additional detail that the effects of income and education on screening rates among women with Medicaid are relatively small and that Medicaid-insured women with higher education and income still have lower screening rates than women with lower education and income covered by commercial or Medicare insurance.

Interestingly, women with lower English proficiency have lower screening rates among commercial and Medicare enrollees compared to women with higher language proficiency, but women with lower English proficiency covered by Medicaid have higher screening rates than women with higher English proficiency. This is a surprising conflicting finding that needs further exploration to uncover the reasons behind the different association of breast cancer screening and language proficiency for females covered by Medicaid. Nevertheless, women with Medicaid at any level of English proficiency have substantially lower screening rates than women with other insurers.

This report also provides state-level screening rates that illustrate different screening patterns among the four included payers. Notably, state-level screening rates among Medicaid enrollees in non-Medicaid expansion states (i.e., Alabama, Florida, Georgia, Kansas, Mississippi, South Carolina, Tennessee, Texas, Wisconsin, and Wyoming) are consistently low, with all non-expansion states falling in the bottom half except Wisconsin (rank 8) and Texas (rank 24). Tennessee, Kansas, and Wyoming all rank at the bottom.

A strength of this report is utilization of a nationally representative sample of adjudicated administrative claims across four major payers that we were able to augment with sociodemographic data from Inovalon's SDOH data warehouse. The SDOH data were securely linked at the 9-digit ZIP code level to MA, commercial, and Medicaid patients and at the 5-digit ZIP code level to Medicare FFS patients, allowing for exploration of the influence of education, income, English proficiency, and living alone on breast cancer screening rates. However, a limitation of this data source is that race and ethnicity is not reliably reported and was thus not included in this analysis.

Conclusion

Overall, breast cancer screening rates among women with Medicaid are consistently low (40-55%) across income, education, English proficiency, and household composition. Across all payer types, the greatest disparities in breast cancer screening are by income. English proficiency, education, and living alone have relatively small, but consistent influence on breast cancer screening.

Healthcare providers and payers should work to identify these barriers among their patients and members and implement interventions and solutions to address them in order to improve breast cancer screening rates and achieve health equity for all women regardless of social status or type of insurance coverage.

Appendix: Data Tables

Table 1: Breast Cancer Screening Rates by Age Group, Payer Type, and Year

Females					
Age Group	Year	Commercial	Medicaid	MA	FFS
		Rate	Rate	Rate	Rate
40-49	2017	56.2	35.5	43.9	41.3
	2018	56.6	35.4	44.7	40.6
	2019	57.8	36.3	44.1	40.3
	2020	53.8	33.9	40.8	37.3
	2021	53.9	32.5	40.4	36.7
	2022	57.0	32.8	42.2	38.6
	2023	58.9	35.5	45.0	40.1
50-64	2017	67.3	48.4	61.7	53.0
	2018	67.9	48.6	64.0	53.1
	2019	69.4	50.7	63.2	53.2
	2020	66.0	48.8	60.6	50.1
	2021	65.7	46.8	60.6	49.2
	2022	68.7	47.9	62.0	51.8
	2023	69.9	51.0	64.5	52.8
65-74	2017	57.3	29.1	63.5	67.8
	2018	58.4	31.5	64.5	68.6
	2019	62.1	32.4	62.8	69.4
	2020	57.4	32.9	63.8	67.8
	2021	56.7	31.0	61.8	68.1
	2022	60.7	33.8	62.8	71.1
	2023	61.9	38.1	64.3	72.4
75+	2017	16.5	7.9	34.3	48.7
	2018	17.1	8.8	33.5	49.0
	2019	23.2	9.2	31.4	49.5
	2020	21.3	9.2	31.7	48.6
	2021	22.2	8.2	30.0	48.4
	2022	25.0	8.5	31.4	51.6
	2023	27.0	10.7	32.7	53.2

MA: Medicare Advantage; FFS: Medicare Fee-for-Service

Table 2: Breast Cancer Screening Rates in 2023 by Income Level and Payer Type

Females Age 50-74				
Income	Commercial	Medicaid	MA	FFS
	Rate	Rate	Rate	Rate
\$0-29K	60.3	47.4	59.2	60.0
\$30-39K	62.7	48.2	59.9	64.2
\$40-49K	64.9	49.0	61.8	67.7
\$50-74K	68.1	50.6	65.6	70.8
\$75K+	73.8	52.1	70.9	75.5

MA: Medicare Advantage; FFS: Medicare Fee-for-Service

Table 3: Breast Cancer Screening Rates by Income Level

Females Age 50-74					
Income	Year	Commercial	Medicaid	MA	FFS
		Rate	Rate	Rate	Rate
\$0-29K	2017	59.2	45.1	60.5	57.1
	2018	60.0	46.0	61.4	57.7
	2019	61.8	47.2	58.7	58.3
	2020	58.2	45.5	56.5	55.9
	2021	57.1	43.0	56.1	55.6
	2022	59.7	44.2	57.5	58.7
	2023	60.3	47.4	59.2	60.0
\$30-39K	2017	61.0	45.3	60.4	59.6
	2018	61.6	45.9	61.3	60.4
	2019	63.5	47.4	58.9	61.4
	2020	59.5	45.8	57.8	59.6
	2021	58.7	43.4	56.5	59.5
	2022	61.7	44.6	57.9	62.5
	2023	62.7	48.2	59.9	64.2
\$40-49K	2017	62.9	45.4	61.5	63.0
	2018	63.5	45.9	62.9	63.8
	2019	65.2	47.9	61.2	64.7
	2020	61.5	46.6	60.9	63.0
	2021	60.9	44.5	58.9	63.3
	2022	63.8	45.7	59.9	66.1
	2023	64.9	49.0	61.8	67.7
\$50-74K	2017	66.1	46.6	65.5	66.8
	2018	67.8	49.1	64.2	67.6
	2019	64.1	48.0	65.0	65.9
	2020	63.7	46.0	62.6	66.4
	2021	66.9	47.3	63.9	69.4
	2022	68.1	50.6	65.6	70.8
	2023	27.0	10.7	32.7	53.2
\$75K+	2017	70.7	47.3	68.3	70.8
	2018	71.2	47.8	69.3	71.5
	2019	72.8	50.1	68.4	72.3
	2020	69.3	48.6	70.6	70.5
	2021	69.1	47.2	68.1	71.0
	2022	72.6	48.9	69.9	74.2
	2023	73.8	52.1	70.9	75.5

MA: Medicare Advantage; FFS: Medicare Fee-for-Service

Table 4: Breast Cancer Screening Rates by English Language Proficiency

Females Age 50-74					
English Proficiency	Year	Commercial	Medicaid	MA	FFS
		Rate	Rate	Rate	Rate
<10% Speak English not well or not at all	2017	67.0	45.3	63.1	65.3
	2018	67.5	46.1	64.1	66.2
	2019	69.2	47.6	62.7	67.1
	2020	65.7	45.5	63.6	65.5
	2021	65.3	43.4	61.2	66.0
	2022	68.5	44.5	62.3	69.1
	2023	69.6	47.8	63.8	70.7
≥10% Speak English not well or not at all	2017	62.7	46.7	63.2	57.7
	2018	63.7	46.7	64.0	58.3
	2019	64.9	49.4	60.9	58.8
	2020	61.8	49.4	59.2	55.7
	2021	60.8	47.2	58.5	55.1
	2022	63.8	49.4	59.9	58.7
	2023	65.1	52.6	62.2	60.1

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Table 5: Breast Cancer Screening Rates by Education Level

Females Age 50-74					
English Proficiency	Year	Commercial	Medicaid	MA	FFS
		Rate	Rate	Rate	Rate
≥50% With bachelor's degree or higher	2017	71.1	46.1	67.2	71.0
	2018	71.6	46.7	67.8	71.7
	2019	73.2	48.7	66.7	72.5
	2020	69.9	46.9	68.5	70.7
	2021	69.6	45.4	66.4	71.3
	2022	73.1	47.3	68.3	74.6
	2023	74.4	50.5	69.4	76.0
<50% With bachelor's degree or higher	2017	64.9	45.7	62.4	63.6
	2018	65.4	46.3	63.5	64.4
	2019	67.1	48.0	61.5	65.3
	2020	63.4	46.5	61.3	63.6
	2021	62.9	44.3	59.3	64.0
	2022	65.9	45.5	60.5	67.1
	2023	67.0	48.9	62.4	68.6

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Table 6: Breast Cancer Screening Rates by Living Alone

Females Age 50-74					
English Proficiency	Year	Commercial	Medicaid	MA	FFS
		Rate	Rate	Rate	Rate
≥50% Living Alone	2017	62.0	45.3	60.9	60.1
	2018	62.5	45.6	61.4	60.6
	2019	64.2	47.2	58.2	61.1
	2020	60.9	45.8	57.4	58.7
	2021	60.3	43.3	56.9	58.7
	2022	63.4	44.6	58.5	62.3
	2023	64.2	48.0	60.3	63.8
<50% Living Alone	2017	67.3	46.1	64.3	65.4
	2018	67.9	46.8	65.6	66.2
	2019	69.6	48.7	64.6	67.1
	2020	66.0	47.1	65.1	65.5
	2021	65.6	45.2	62.5	66.0
	2022	68.8	46.5	63.5	69.0
	2023	70.0	49.7	65.2	70.6

MA: Medicare Advantage; FFS: Medicare Fee-for-Service

Table 7: Breast Cancer Screening Rates by State

Females Age 50-74								
Year	Commercial		Medicaid		MA		FFS	
	State	Rate	State	Rate	State	Rate	State	Rate
2023	MA	78.2	NY	60.8	IA	76.6	DE	77.8
	MN	77.3	CT	55.6	WI	75.9	MA	77.6
	ME	76.8	DC	55.1	CO	75.6	RI	76.9
	CT	74.5	LA	54.2	ND	75.0	IA	76.7
	NH	74.5	NJ	53.2	WY	72.7	SC	75.8
	MI	74.4	MD	52.8	ME	70.1	WI	75.6
	RI	72.8	MI	52.1	WA	69.7	PA	74.4
	WI	72.8	SC	50.4	MT	69.3	NE	74.1
	OH	71.8	MS	49.4	VT	68.9	MN	74.0
	VT	71.6	CA	49.3	MN	68.6	NC	73.8
	IL	71.3	WI	49.2	MD	68.3	FL	73.5
	NJ	70.8	IL	49.2	ID	68.0	ND	73.3
	CA	70.4	IA	48.8	OK	66.2	SD	73.2
	CO	69.9	IN	48.0	OR	65.2	NH	72.8
	ID	69.8	OH	47.8	CA	64.6	KS	72.4
	ND	69.6	VA	47.5	FL	64.0	CT	72.0
	VA	69.3	NC	47.0	IL	63.4	LA	71.8
	DE	68.2	PA	46.5	UT	63.2	OH	71.8
	MT	68.0	RI	46.1	NY	63.0	IN	71.5
	LA	67.4	NH	45.6	MI	62.8	IL	70.9
	PA	67.3	NE	45.6	NM	62.2	MD	70.7
	NY	67.1	AZ	45.1	SC	61.4	VA	70.6
	TX	67.1	WV	45.0	DE	61.3	MO	70.3
	IA	66.4	GA	44.1	AL	61.1	MI	70.2
	SC	66.2	SD	44.0	LA	60.9	TN	70.0
	AZ	65.8	KY	43.7	IN	60.7	AZ	69.9
	SD	65.6	DE	43.6	VA	60.6	ME	69.5
	DC	65.6	FL	42.9	MS	60.2	NY	69.5
	NC	65.1	KS	42.4	GA	60.2	GA	69.4
	WA	65.0	NM	41.1	CT	59.4	VT	69.3
	OK	64.9	MO	40.0	NJ	58.7	CO	69.1
	FL	64.5	AR	38.9	AR	58.3	HI	68.4
	MD	64.3	ND	38.5	PA	58.2	KY	68.3
	NM	64.3	WA	37.7	TX	57.3	MT	68.3
	NE	64.2	TN	37.6	NC	57.1	NJ	67.6
	OR	64.2	NV	36.9	AZ	56.1	UT	67.4
	GA	63.8	MA	34.7	NE	55.7	AR	67.1
	AK	62.9	OR	32.9	SD	55.6	DC	67.1
	HI	62.6	ID	32.5	MO	54.3	AL	67.0
	KY	62.4	TX	31.8	NV	53.4	OR	67.0
	MO	62.1	MT	31.3	OH	53.3	ID	66.6
	AL	61.4	CO	30.6	KY	53.2	MS	66.5
	IN	61.3	MN	29.0	NH	51.5	TX	66.2
	MS	61.3	VT	28.6	RI	51.3	WV	66.0
	NV	61.0	UT	27.2	WV	50.0	OK	65.5
	WV	59.5	OK	27.1	HI	49.6	WA	65.2
	UT	58.7	HI	27.0	MA	49.4	CA	65.0
	TN	58.5	ME	26.7	TN	47.7	NM	62.4
	KS	58.3	AL	18.7	KS	37.2	WY	61.0
	WY	57.2	WY	15.4	DC	33.3	NV	60.4
	AR	53.9	AK	5.9	AK	20.0	AK	60.0

MA: Medicare Advantage; FFS: Medicare Fee-for-Service

Sources:

1. "Breast Cancer Facts & Figures 2024-2025," American Cancer Society, 2024. <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/2024/breast-cancer-facts-and-figures-2024.pdf>
2. Refer to the methods section for a description of the eligible population.
3. "Breast Cancer Facts and Statistics," Breastcancer.org, December 12, 2024, <https://www.breastcancer.org/facts-statistics>
4. "Breast Cancer Statistics," U.S. Centers for Disease Control and Prevention, September 16, 2024, <https://www.cdc.gov/breast-cancer/statistics/index.html>
5. "Breast cancer statistics 2024," American Cancer Society Journals, December 2024, <https://acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21863>
6. "United States Preventative Services Task Force Update Breast Cancer Screening Guidelines," U.S. Centers for Disease Control and Prevention, May 17, 2024, https://www.cdc.gov/wtc/newsBreastCancerScreening_20240517.html
7. "The Impact of Loneliness and Social Isolation on Cognitive Aging: A Narrative Review," National Library of Medicine, June 29, 2023, <https://pmc.ncbi.nlm.nih.gov/articles/PMC10357115/>
8. "American Cancer Society Recommendations for the Early Detection of Breast Cancer," American Cancer Society, Updated December 19, 2023. Accessed November 25, 2024. <https://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer.html>
9. NCQA. Breast Cancer Screening (BCS-E). Accessed November 22, 2024. <https://www.ncqa.org/hedis/measures/breast-cancer-screening/>
10. National Cancer Institute, NIH, HDHHS. Cancer Trends Progress Report. 2024. March. <https://progressreport.cancer.gov/detection/breast-cancer>

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