



# Breast Imaging in Women Over Forty

Varnita Vishwanath<sup>1</sup> · Shanen Jean<sup>1</sup> · Anusha Amin Macnojia<sup>2</sup> · Esraa Al-Jabbari<sup>3</sup> · Stephanie Vuong<sup>1</sup> · Tanya W. Moseley<sup>4</sup>

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## Abstract

**Purpose of Review** This review explores the growing complexities surrounding breast cancer screening in women aged 40 and older, addressing controversies, recent guideline changes, and disparities in access and outcomes. The aim is to provide comprehensive insights into the benefits, risks, and barriers associated with mammography in this demographic.

**Recent Findings** There are shifting recommendations from organizations like the USPSTF, now advocating for biennial mammograms starting at age 40. Several studies underscore the importance of early screening, particularly for high-risk groups, emphasizing the significant impact on mortality rates and overall survival. Additionally, the COVID-19 pandemic has exacerbated disparities, leading to a concerning decrease in screening rates, especially among women over 40 and minority populations.

**Summary** This review highlights the need for tailored breast cancer screening strategies for women aged 40 and older, considering individual risk factors, guideline updates, and socioeconomic disparities. It emphasizes the importance of addressing barriers to access and promoting early detection to improve outcomes and reduce breast cancer mortality.

**Keywords** Screening mammography · Screening guidelines · Breast cancer · Diversity · Disparity · Covid-19 · Mortality

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Varnita Vishwanath and Shanen Jean contributed equally to this work.

✉ Tanya W. Moseley  
TStephens@mdanderson.org

Varnita Vishwanath  
Varnita.Vishwanath@midwestern.edu

Shanen Jean  
Shanen.Jean@midwestern.edu

Anusha Amin Macnojia  
anusha.macnojia@bcm.edu

Esraa Al-Jabbari  
ehaljabbar@utmb.edu

Stephanie Vuong  
SVuong24@midwestern.edu

<sup>1</sup> Arizona College of Osteopathic Medicine, Midwestern University, Glendale, AZ, USA

<sup>2</sup> Baylor College of Medicine, Houston, TX, USA

<sup>3</sup> The University of Texas Medical Branch, Houston, TX, USA

<sup>4</sup> Department of Breast Imaging, University of Texas MD Anderson Cancer Center, 1515 Holcombe Blvd, Box 1350, Houston, TX 77030, USA

## Introduction

Screening mammography has vitalized modern-day medical care for breast health in the United States by substantially reducing breast cancer mortality [1]. If caught early via routine mammography, the 5-year survival rate for breast cancer is over 90% according to the National Cancer Institute [2]. However, the most appropriate time to begin and end routine mammography remains controversial. In May 2023, the U.S. Preventive Services Task Force (USPSTF) revised its recommendation on breast screening mammography from biennial for women aged 50–74 to once-every other year beginning at age 40 [3]. Additionally, the American College of Radiology (ACR) and Society for Breast Imaging (SBI) recommend annual mammography screening beginning at age 40 and continuing beyond age 74 unless life expectancy is limited by comorbidities [4••]. Despite having these preventative recommendations in place, the American Cancer Society estimated 43,250 deaths from breast cancer in 2022 [5]. The purpose of this review is to provide context for breast imaging in women over 40 with respect to benefits, risks, and barriers to care.

## Breast Cancer Statistics at Age 40

There is extensive evidence in literature supporting initiating screening mammography prior to age 50. The National Cancer Institute SEER program estimated that breast cancer represents 15% of new cancer cases in the United States between 2015–2019. Of the 15% of new breast cancer cases, women aged 20–34 comprised 2.0%, women aged 35–44 comprised 8.8%, and women aged 45–54 comprised 18.8% [2]. Young women are more likely to be diagnosed with breast cancers at advanced stages and with more aggressive subtypes (low estrogen receptor positivity, HER2 positive) [6•]. The consequent poor prognosis yields high breast cancer mortality in this age group. The percent of deaths by age group according to the SEER program from 2016–2020 estimated 1.0% in women aged 20–34, 4.4% in women aged 35–44, and 11.3% in women aged 45–54. The sharp rise in the percentage of new cases and deaths after age 35 reinforces the necessity to begin screening mammography at or prior to the age of 40.

## Breast Cancer Statistics Beyond Age 40

Breast cancer incidence is more prevalent around age 70. The mean age at diagnosis in the United States is 63, while the mean age at death is 70, according to the National Cancer Institute [2]. Breast cancer diagnosed beyond the age of 74 comprised 18.9% of new cases between 2015–2019, while the percentage of death comprised 38% between 2016–2020 [2]. The ACR/SBI recommends that those without life-limiting comorbidities should continue undergoing routine mammography beyond age 74. This should be an individualized decision between the patient and the referring physician considering the patient's life expectancy, health status, and health-related goals.

## ACR and SBI Breast Cancer Screening Guidelines

Annual screening mammograms starting at the age of 40 are recommended by both ACR and SBI [4••]. Starting screening mammograms at a later age (e.g., 45 or 50) leads to increased mortality from breast cancer, particularly affecting minority women because about one-third of breast cancers are diagnosed under age 50 in Asian, Black, and Hispanic women [4••]. Unless there is a limited life expectancy, it is recommended to continue screening mammograms with no upper age limit. Women aged 75 and older with mammographically detected invasive breast

cancer are found to have a better 5-year cause-specific survival [4••].

A prior cross-sectional study compared age-based screening mammography versus risk-based screening in women ages 45 and older. The study showed that more cancers were detected in the age-based screening group; however, false-positive mammograms and benign biopsy results were also more frequently encountered [7].

## USPSTF Breast Cancer Screening Guidelines

In May 2023, the U.S. Preventive Services Task Force (USPSTF) posted a draft recommendation statement on breast cancer screening. The Task Force now recommends that all women get screened for breast cancer every other year starting at age 40. More research is needed on the benefits and harms of screening women older than 75 years of age and whether women with dense breasts should have additional screening with MRI or breast ultrasound [8]. Prior to this statement, the Task Force had previously recommended that breast cancer screening for women in their 40s was an individual decision based on health history and preferences. With the Task Force recommending screening starting at 40, this could help prevent more breast cancer deaths, a stated 19 percent more lives saved [9].

Additionally, Black women are 40 percent more likely to die from breast cancer compared to White women and may get cancer at younger ages [1]. More research is needed to elucidate underlying causes and explore further ways to circumvent health inequities faced by women of color, including Black, Hispanic, Latina, Asian, Pacific Islander, Native American, and Alaska Native women. Effective and preventative screening and treatment for breast cancer may positively impact people experiencing health disparities related to racism, poverty, lack of health care access, etc.

The USPSTF draft recommendation applies to women at average risk of developing breast cancer. Women who are at higher risk of breast cancer, including people with family history of breast cancer, personal history of breast cancer, who have certain genetic markers or history of high-dose radiation therapy, or prior high-risk breast lesions should follow individualized screening guidelines.

## Benefits and Disadvantages of Screening Mammography

Screening mammography allows for an earlier detection of cancer and more conservative therapies. With the introduction of annual screening mammograms, there may be up to a 40% reduction in mortality [4••]. A potential downside of screening mammography is an increased recall rate

when an abnormality necessitates further diagnostic evaluation [4••]. Also, there is an increased risk for biopsies with benign biopsy results. However, image guided breast biopsy is minimally invasive, recommended for less than 2% of screened patients and has been shown to improve life year gain [4••]. The theoretical risk of lives lost from the effect of radiation outweighs the number of lives saved by using screening mammograms [4••]. The addition of digital breast tomosynthesis (DBT) reduces false-positive imaging rates and improves cancer detection [4••].

A 10-year review for screened versus unscreened women with breast cancer, ages between 40 and 49 years, demonstrated a statistically significant increase in 5-year disease-free survival (94% vs 71%) and overall survival (97% vs 78%) [4••].

## Diversity and Disparity in Breast Cancer Screening

Many studies have emphasized the relationship between patients' diversity and disparity in breast cancer screening and treatment [10]. These disparities are frequently attributed to lack of health education including patients and healthcare personnel, difficulties in accessing healthcare, differences in quality of care, communication issues, gender identity, in addition to socioeconomic factors, and cultural influences [10, 11••].

Access to healthcare and quality of care barriers include logistical barriers such as failure to get childcare or time off from work, long clinic waiting times, and transportation issues as well as financial restrictions such as inadequate or lack of insurance coverage [10, 11••]. Difference in the quality of imaging and interpretation also contributes to disparity related to diversity [10].

Gender identity is another factor. Persons identifying themselves as lesbian, gay, bisexual, transgender, or queer (LGBTQ) are less likely to undergo breast cancer screening [4••, 12]. Lower screening rates found in male-to-female transgender individuals when compared with other transgender groups [4••].

Communication gaps include language barrier, difficulties in understanding abnormal imaging findings and potential differences in beliefs can also affect access to healthcare and follow-up [10].

Race and ethnicity can affect breast cancer screening as well as mortality disparity [7]. Non-Hispanic Black (NHB) women showed 40% higher breast cancer mortality compared to non-Hispanic White women (NHW). This is in part due to the higher incidence of BRCA1 and BRCA2 mutations and aggressive breast cancers in NHB women [4••]. Despite all of that, several studies have found that Black women are less commonly getting screening mammograms

and benefit from genetic services compared to white women [11••].

Addressing the underlying barriers is the first step to reduce these disparities, improve equity and health outcomes. The use of mobile mammography units can improve access to healthcare [10]. Breast imaging specialists are the face of breast care and are encouraged to participate in community outreach initiatives to improve breast cancer awareness and help women navigating their healthcare [10, 11••]. Also, improving diversity in the radiology workforce has been shown to increase patient access to healthcare and improve outcome [11••]. Hiring a certified interpreter speaking to patients in person or through phone helps resolve the language barrier.

Hiring nurse navigators helps identify patients who are late for their screening mammography, focus on individual barriers, close communication gaps, improve patient education, and encourage adherence to breast care.

For LGBTQ patients, creating a welcoming, sensitive, and respectful environment can improve compliance. Also, setting outlines and recommendations helps reduce confusion. Regarding average-risk transgender individuals, breast cancer screening recommendations depend on the sex assigned at birth, history of mastectomy, the use of hormones [4••]. Annual screening mammograms starting at age of 40 are recommended by ACR and SBI for male-to-female transgender individuals who received breast-enhancing hormones and female-to-male transgender individuals who reserved any breast tissue [10, 12].

Most of the time more than one barrier is present and the best improvement will be achieved when these strategies are combined.

## Impact of COVID-19 on Breast Imaging

While guidelines recommend screening after age 40, external circumstances such as the recent COVID-19 pandemic can have an undesirable effect. A cross-sectional study investigating screening and diagnostic mammography, biopsies, and cancer diagnosis rates in the pre-COVID (March 1, 2019 to May 31, 2019), peak COVID (March 1, 2020 to May 31, 2020), and COVID recovery time (March 1, 2021 to May 31, 2021) found that screening mammography had the greatest reduction throughout the pandemic, however, substantial decreases in all other domains were also reported. During 2019, screening mammography volumes were 36.3% of pre-COVID volumes, 57.9% for diagnostic mammography, and 48.7% for cancer diagnoses. During COVID recovery, volumes recovered, however, not fully to the level of pre-COVID ranges. Volumes during this time recovered to 85.3% of pre-COVID for screening mammography, 97.8% for diagnostic mammography, and 92.0% for

cancer diagnoses [6•]. Notably, screening mammography recovered the least compared to the domains. Although these effects were noticed in women of all ages, the impact of COVID showed a disproportionate negative impact on older women, specifically those above 70, Asian women, facilities in the Northeast, and facilities affiliated with academic medical centers. The largest decrease noted was among Asian women, who also tend to have lower rates of other screening services, such as cervical cancer screenings. Results raise concerns that screening mammography will continue to be under-used in asymptomatic women; this could have long-term implications for breast cancer staging and outcomes for all women. Faster recovery to pre-COVID-19 breast cancer screening rates would be beneficial as it would increase breast cancer findings on a mammogram before it's clinically detectable, and subsequently provide more options for treatment, and significantly better outcomes.

## Conclusion

Breast cancer screening has significantly reduced mortality rates in the United States, with a 5-year survival rate of over 90% if caught early. However, the appropriate time to begin and end routine mammography remains controversial. In May 2023, the U.S. Preventive Services Task Force (USPSTF) revised its recommendation on breast screening mammography from biennial for women aged 50–74 to once every other year beginning at age 40. The American College of Radiology (ACR) and Society for Breast Imaging (SBI) recommend annual mammography screening beginning at age 40 and continuing beyond age 74 unless life expectancy is limited by comorbidities.

Screening mammography is a valuable tool for early detection of cancer and more conservative therapies, potentially reducing mortality by up to 40%. Despite having these preventative recommendations in place, the American Cancer Society estimated 43,250 deaths from breast cancer in 2022 [5]. Individual risk factors, modification of guidelines, and socioeconomic inequalities should all be considered when developing breast cancer screening programs for women over the age of 40. Lives can be saved by improving outcomes and reducing breast cancer mortality by addressing barriers to access and improving early diagnosis.

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**Data Availability** No datasets were generated or analysed during the current study.

## Declarations

**Conflict of Interest** Dr. Al-Jabbari and Ms. Jean, Ms. Vishwanath, Ms. Macnojia and Ms. Vuong declare that they have no conflict of interest. Dr. Moseley is a medical imaging consultant for Merit Medical, Hologic, GE, and Siemens Medical.

**Human and Animal Rights and Informed Consent** This article does not contain any studies with human or animal subjects performed by any of the authors.

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- Of importance
- Of major importance

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