Breast cancer is the most common malignancy among reproductive-aged women, and an increasing number of women are breastfeeding at the time of screening initiation. The literature was reviewed to identify evidence-based guidelines for breast cancer screening during lactation. Health care providers should consider routine age-related or high-risk screening; they should also discuss alternate surveillance strategies, including deferment until cessation of breastfeeding. Shared decision-making and individualized patient care should involve consideration of the limitations of current evidence. Lactation-related radiographic changes may make examination interpretation more challenging; preprocedure milk expression and use of particular supplemental imaging modalities can improve examination sensitivity. Despite these strategies, breastfeeding women may have higher rates of false-positive findings and therefore undergo more biopsies. However, given the increased risk of biologically aggressive breast cancers in postpartum women, these risks may be outweighed by the benefits of routine breast cancer screening for breastfeeding women.

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As a result of national trends in delayed childbearing, an increasing number of women are breastfeeding when they reach the age for initiation of breast cancer screening. Although it is clear that lactating women with a breast mass or persistent breast concerns should undergo diagnostic breast imaging, more questions are arising regarding appropriate breast cancer screening in this population.

Few established guidelines for breast cancer screening in the setting of lactation exist. The American College of Radiology recently published guidelines for breast imaging in pregnant and lactating women, including the recommendation that breastfeeding women be offered routine breast cancer screening depending on the individual’s risk of malignancy and the anticipated duration of lactation. However, breast cancer screening recommendations vary among different national and specialty-specific societies. Some, such as the American College of Radiology, advise that women be stratified into groups based on lifetime risk of breast cancer and offer specific recommendations for each group with regard to timing of screening initiation, screening frequency, and screening modalities. Several organizations recommend that each woman undergo risk assessment to determine her individual lifetime risk of breast cancer before age 30.

Rigorous analyses demonstrate that screening initiation at age 40 results in the greatest mortality benefit. For this reason, the American College of Radiology, the National Comprehensive Cancer Network, and the American Society of Breast Surgeons advise that average-risk women initiate screening at age 40 and undergo annual imaging. The American College of Obstetricians and Gynecologists advises that average-risk women be offered screening mammography beginning at age 40 and initiate screening no later than age 50, with a suggested screening interval of 1–2 years. The U.S. Preventive Service Task Force recommends biennial mammographic screening beginning at age 50, and the American Cancer Society recommends annual screening from ages 45–54 followed by screening every 1–2 years.
Breastfeeding status should be disclosed to the breast imager at the time of the examination, because the physiologic changes of lactation affect the radiographic appearance of the breast and, therefore, examination interpretation. Proliferation and arborization of the ductal–lobular system as well as presence of breast milk within dilated lactiferous ducts result in increased parenchymal density on mammography (Fig. 1) and increased echogenicity on breast ultrasonography (Fig. 2). On breast MRI, the relative hypervascularity of the lactating breasts confers increased background enhancement, and the presence of breast milk increases T2 signal (Figs. 3 and 4). These radiographic changes appear to resolve by approximately 3 months after the cessation of lactation, potentially mirroring the corresponding involutional changes on a cellular level. Breastfeeding women should breastfeed or express milk just before the imaging examination to decrease parenchymal density and maximize the sensitivity of the study. Interpretation of standard breast imaging examinations may still be challenging, requiring additional studies to discern a diagnosis. For example, the American College of Radiology suggests that lactating patients may benefit from digital breast tomosynthesis, or “3-D mammography,” to reduce obscuration of abnormal radiographic findings by dense breast tissue (Fig. 1B). Breast ultrasonography represents a particularly valuable supplemental screening examination for women with above-average lifetime risk of breast cancer. When contrast-enhanced breast MRI is indicated, health care providers should inform women that no adverse events have been reported in infants who breastfeed after maternal receipt of intravenous gadolinium. Less than 0.0004% of the dose is excreted into breast milk and absorbed by the infant. Women electing to avoid any potential risks should be counseled to express and discard milk for 12–24 hours.

Breastfeeding women with an above-average lifetime risk of breast cancer, such as those with deleterious BRCA or other germline mutations that confer elevated risks of breast cancer, may benefit from a specific screening schedule during lactation. Expert consensus guidelines for BRCA-positive lactating women advise that those older than 30 years of age not postpone routine mammography and breast magnetic resonance imaging (MRI) screening, with the recognition that studies may have been delayed during pregnancy owing to concerns about fetal radiation exposure and gadolinium teratogenicity. Alternatively, they suggest that, if a woman plans to breastfeed for fewer than 6 months, she may reasonably delay screening until 6–8 weeks after weaning. Of note, longer duration of breastfeeding is associated with decreased risk of developing breast cancer in women with deleterious BRCA mutations, particularly BRCA1.

Increasing evidence supports recognition of postpartum women as a unique population with a heightened risk of biologically aggressive breast cancer. Women, including those who are breastfeeding, bear this increased risk for up to 10 years after childbirth. As more evidence emerges, it may prove reasonable for lactating women to undergo more frequent, high-risk imaging during the postpartum period. At this time, it is the authors’ opinion that this population should, at the very least, not forgo routine screening.

Patients should be reassured that there is no contraindication to mammography during lactation with regard to exposure to ionizing radiation. The American College of Radiology states that breast MRI is “usually not appropriate” as the initial screening modality in this population but may be considered in women with above-average lifetime risk of breast cancer.
lactating women. Although ultrasonography is more sensitive than mammography in detection of pregnancy-associated breast cancer and some postpartum breast cancers, this modality has not been studied as a standalone screening test in the lactating population. Moreover, ultrasonography is less sensitive than mammography in the detection of calcifications and architectural distortions.

Despite these considerations, lactating women may incur higher rates of false-positive imaging findings than nonlactating women and thus undergo more biopsies. In addition, breastfeeding patients may develop secretory hyperplasia–related microcalcifications that raise concern for malignancy. Though often round and distributed diffusely and bilaterally, their appearance may be indistinguishable from malignancy-associated calcifications and thus warrant biopsy. Patients should be reassured that the risk of milk fistula after breast biopsy is extremely low and that weaning is not required for biopsy.

Often used in combination with mammography in high-risk, nonlactating women, breast MRI is known for its high sensitivity and accordingly high false-positive rate. Despite the challenge of interpreting MRI images of a lactating breast, diagnostic accuracy can still be expected. In some cases, it may be reasonable to delay the examination until several months after weaning to minimize false-positive results that may lead to unnecessary biopsies. However, uninterrupted MRI screening should be considered in high-risk women who plan to breastfeed for long periods of time.

Fig. 2. Screening breast ultrasonograms with normal results, 9 o’clock position of the right breast of the patient described in Fig. 1B. A. Baseline ultrasonogram 1 year before pregnancy (2017) demonstrates a mixture of mildly echogenic glandular tissue (white) and adipose tissue (dark grey). B. Ultrasonogram performed during lactation (2019). Nearly all of the adipose tissue has been replaced by mildly echogenic glandular tissue.


Fig. 3. Screening contrast-enhanced breast magnetic resonance imaging examination with normal results of the patient described in Fig. 1B. T1- (A) and T2-weighted short-T1 inversion recovery (STIR) sequences (B) obtained in 2017 before pregnancy. In 2019, the patient was postpartum and lactating. T1-weighted images (C) demonstrate a marked increase in the ratio of glandular tissue (dark grey) to adipose tissue (white) compared with the baseline image in A, consistent with hypertrophy of glandular tissue. T2-weighted STIR image (D) demonstrates marked bilateral T2 hyperintensity compared with the baseline imaging in B, consistent with increased fluid content.

In summary, the authors suggest that breastfeeding women should undergo routine breast cancer screening with at least the same frequency as nonlactating women. Special considerations such as preprocedure milk expression and use of particular supplemental imaging modalities can maximize the utility of screening in this unique patient population.

REFERENCES


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