

Healthcare Provider FAQs: Breast Density

The following is intended for use when discussing breast density with clients. In general, it is suggested that women follow recommendations as per the joint clinical decisions between the radiologist and healthcare provider considering the woman's individual circumstances. However, common alternatives are presented here with some of the research-to-date on the benefits and harms associated.

Remember, the majority of breast cancers are found in women with no known risk factors. We encourage all eligible women to screen regularly. Supplementary screening should be chosen by first weighing the benefits and harms.

What resource do you recommend for assessing breast cancer risk?

There are many risk assessment tools online. We have provided a list of some of them on our website at: screeningforlife.ca > "Breast" > "Risk factors (things you can't change)".

How is breast density assessed?

Breast density is determined by mammography only. It is assessed by the reviewing radiologist or by software specifically designed to assess breast density based on area or volume.

What are the recommendations for average risk women (ages 40-74) with different breast densities?

| Density | % of Population ¹ | Recommendation |
|---|------------------------------|---|
| Fatty | 12% | Average risk recommendations. |
| Scattered areas of fibroglandular density | 47% | |
| Heterogeneously dense | 32% | Consider recommendations per the radiologist report. See the other side of this sheet for information on the pros and cons of alternative approaches. |
| Extremely dense | 9% | |

How does the relative risk of breast cancer change for women with dense breasts?

Women with heterogeneously dense breasts have about 1.2 times greater relative risk than average of developing breast cancer. For women with extremely dense breasts, the relative risk is about 2.1 times greater than the average risk². Dense breast tissue can also make cancer harder to spot on a mammogram, increasing the risk of a missed cancer.

What resources can I refer my patient to in order to learn about breast density?

Your patient can obtain a booklet on breast density by going to screeningforlife.ca > "Breast" > "Breast Density". Alternatively, they can call the Alberta Breast Cancer Screening Program at 1-866-727-3926 to have a hard copy mailed out.

How can my patient find out her breast density?

Breast density is reported on each patient's screening mammography report. You can access this report on Netcare. If the density information is missing, please contact the radiology clinic that performed the exam to request this information. Note, this may not be possible for some older reports.

¹ Alberta Health Services. Alberta Women Aged 40-74 in 2019. Unpublished.

² Sickles EA. The Use of Breast Imaging to Screen Women at High Risk for Cancer. Radiologic Clinics of North America. 2010;48(5):859-78.

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Research on the following approaches for screening women with dense breasts is still developing.

What does the research say about tomosynthesis?

Tomosynthesis is a technology that works by taking “3D” images, as opposed to the 2D images taken by digital mammography. Early research suggests that when used as an adjunct to digital mammography, tomosynthesis can increase cancer detection while decreasing abnormal (recall) rates^{3,4,5}. However, it is still unclear if tomosynthesis is effective in decreasing interval cancers, mortality rates and which types of cancers are detected³. Research also suggests that breast density should not be the only criterion for deciding if a woman should receive supplemental imaging⁶.

What does the research say about supplemental ultrasound?

Current literature suggests an increase in detection but an approximate doubling in false positives with the addition of ultrasound⁷. One study found women with dense breast tissue had 4.2 cancers detected per 1,000 with mammography alone vs 6.6 per 1,000 with the addition of ultrasound⁸. However, abnormal (recall) rates also increased from 13.8 to 22.8 per 1,000.

What does the research say about MRI?

MRI may catch more breast cancers in women with dense breast tissue but one systematic review found a 3-5 fold higher chance of recall with MRI⁹. MRIs are also limited in their local availability.

What does the research say about increased screening frequency?

One study using U.S. data modeled the following impact of increasing screening from biennial to annual screening for women of varying breast densities¹⁰. These results indicate minimal benefits with more significant harms related to benign findings.

Median Lifetime Benefits and Harms of Screening Annually or Biennially per 1,000 Women Screened for Women Aged 50-74¹¹ by Breast Density

| Density | Breast Cancer Deaths Averted vs No Screening | | False-Positive Mammos vs. No Screening | | Benign Biopsy Results vs No Screening | |
|------------------|--|---------------|--|---------------|---------------------------------------|---------------|
| | <i>Biennial</i> | <i>Annual</i> | <i>Biennial</i> | <i>Annual</i> | <i>Biennial</i> | <i>Annual</i> |
| Fatty | 4.1 | 4.7 | 618 | 1,101 | 91 | 127 |
| Scattered | 5.2 | 6.9 | 1,009 | 1,806 | 150 | 209 |
| Hetero | 6.3 | 8.4 | 1,197 | 2,123 | 178 | 266 |
| Dense | 6.5 | 8.9 | 939 | 1,668 | 139 | 209 |

Note: current Clinical Practice Guidelines recommend annual screening for anyone choosing to screen at age 40-44.

³ Friedewald SM. Breast Cancer Screening: The Debate that Never Ends. In: Gradishar WJ, editor. *Optimizing Breast Cancer Management*. Cham: Springer International Publishing; 2018. p. 31-8.; Rose SL, Tidwell AL, Bujnoch LJ, Kushwaha AC, Nordmann AS, Sexton R. Implementation of Breast Tomosynthesis in a Routine Screening Practice: An Observational Study. *Am J Roentgenol*. 2013;200(6):1401-8.

⁴ Johnson MM. Full-Field Digital Mammography and Digital Breast Tomosynthesis. *Radiol Technol*. 2017 Jan;88(3):322M.

⁵ Coldman A. Report on breast density. 2018. Retrieved from <http://www.bccancer.bc.ca/screening/Documents/Coldman%20-%20Report%20on%20Breast%20Density.pdf>

⁶ Kerlikowske K, Zhu W, Tosteson ANA, Sprague BL, Tice JA, Lehman CD, et al. Identifying women with dense breasts at high risk for interval cancer: a cohort study. *Ann Intern Med*. 2015;162(10):673.

⁷ Rebolj, M., Assi, V., Brentnall, A., Parmar, D. and Duffy, S.W., 2018. Addition of ultrasound to mammography in the case of dense breast tissue: systematic review and meta-analysis. *British journal of cancer*, 118(12), pp. 1559-1570.

⁸ Wilczek B, Wilczek HE, Rasouliyan L, Leifland K. Adding 3D automated breast ultrasound to mammography screening in women with heterogeneously and extremely dense breasts: Report from a hospital-based, high-volume, single-center breast cancer screening program. *European Journal of Radiology*. 2016;85(9):1554-63.

⁹ Lord SJ, Lei W, Craft P, Cawson JN, Morris I, Waller S, et al. A systematic review of the effectiveness of magnetic resonance imaging (MRI) as an addition to mammography and ultrasound in screening young women at high risk of breast cancer. *Eur J Cancer*. 2007;43(13):1905-17.

¹⁰ Trentham-Dietz A, Kerlikowske K, Stout N, Miglioretti D, Schechter C, Ergun MA, et al. Tailoring breast cancer screening intervals by breast density and risk for women aged 50 years or older: Collaborative modeling of screening outcomes. *Ann Intern Med*. 2016;165(10):700-12.

¹¹ For women with a relative risk of 1.0