

Breast density notification

Are family doctors prepared to counsel patients on risks and management?

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A deeper understanding of the importance of breast density as a breast cancer risk factor has prompted a number of provincial and territorial screening programs to inform women of their breast density test results directly. Seven Canadian provinces inform all women of their breast density. Saskatchewan and Newfoundland and Labrador are committed to implementation of density notification. The Northwest Territories and Yukon notify only those with extremely dense breasts, while Quebec does not notify any women of density. Nunavut does not have a screening program.¹ On March 9, 2023, the US Food and Drug Administration mandated national reporting of breast density to patients and their health care providers in the United States to be implemented within 18 months.² These system changes will translate into many women looking to their FPs for more information on breast density. It is known that FPs are uncertain about best practices for discussing dense breasts and managing patients with dense breasts.^{3,4} With breast density notification becoming nearly universal, it is time for FPs to become adequately prepared to counsel Canadian women about breast density, inherent risks of dense breasts, and appropriate management.

Breast density: definitions and risks

Dense breasts have a higher proportion of fibroglandular tissue than fatty tissue.⁵ Breast density cannot be determined by any means other than mammogram screening—there is no way to tell fibroglandular density based on appearance, clinical examination, or size of breasts. Density can be expressed as a percentage or using categories of the American College of Radiology Breast Imaging Reporting and Data System (**Figure 1**)^{1,6}: A, for fatty-replaced, low-density tissue; B, for scattered areas of fibroglandular tissue density; C, for heterogeneously dense tissue; and D, for extremely dense tissue. Category D corresponds to density greater than 75%. Dense breasts are considered to be those in categories C and D and are seen in approximately 40% of women between the ages of 40 to 74 years, according to US estimates.⁷ Breast density tends to diminish over time: close to 60% of women in their 40s have high breast density compared with only about 25% of women in their 70s.⁷ However, breast density does not decline with age in all women, and those whose breast density does not decrease over time are more likely to be diagnosed with breast cancer.⁸ Although many non-modifiable factors, such as genetics and race (eg, Asian heritage) contribute to breast density, modifiable factors such as hormone exposure (eg, oral contraceptive pill use,

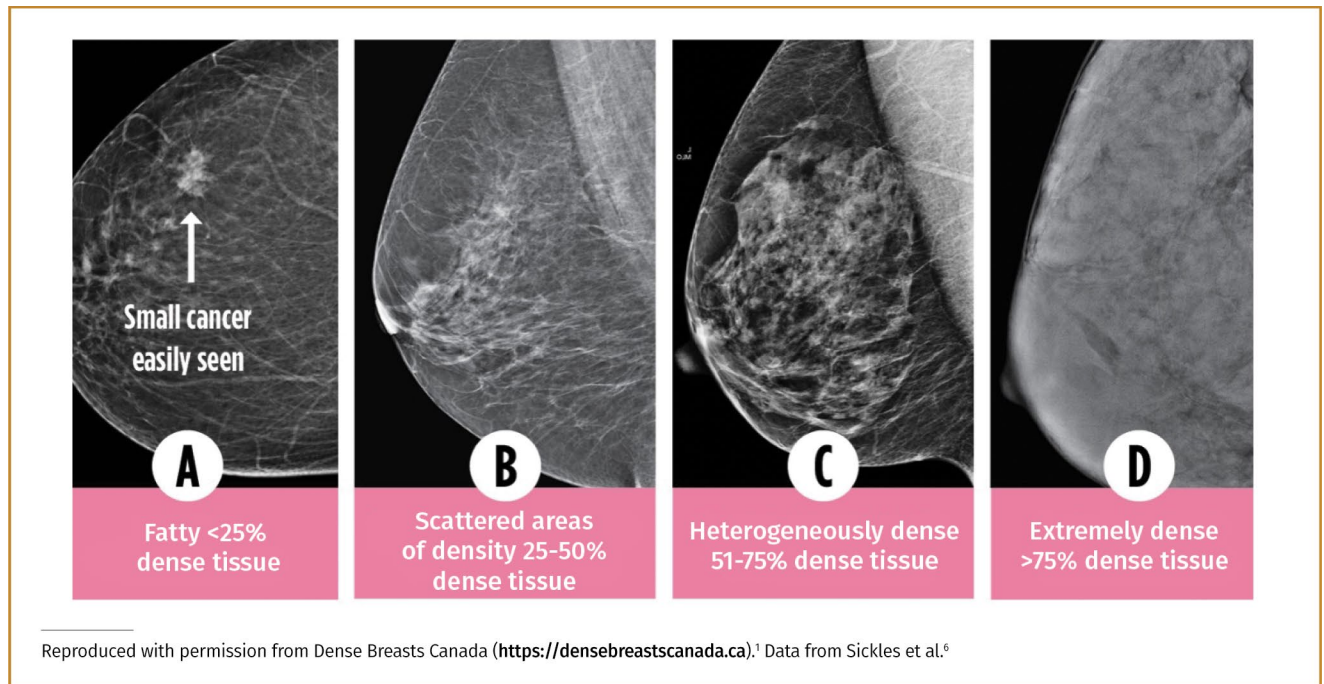
hormone replacement therapy), alcohol intake, and diet can also contribute to increased breast density.⁹

The risks of dense breasts are 3-fold. First, extremely dense breasts confer a risk of breast cancer that is greater than that of having a first-degree relative with breast cancer.¹⁰ Breast cancer risk increases with breast density, and the risk for women with category D breast density is up to 4 to 6 times higher than for women whose breasts are mostly low-density tissue.^{11,12} Second, breast cancers are masked by fibroglandular tissue in dense breasts, making mammogram screening much less effective at finding cancers.¹³ Only those cancers with calcifications or architectural distortion will be visible on mammograms of dense breast tissue. Sensitivity for mammogram screening of breasts is 98% for those with category A density, but only 50% for those with category D density.¹⁴ Finally, women with extremely dense breasts are therefore 5 to 13 times more likely to present with interval cancers—cancers found after a normal screening mammogram—which have a poorer prognosis than screen-detected cancers.¹⁵

Determining optimal management

It is suggested that screen-eligible women with extremely dense breasts have annual mammography to reduce the chances of “underdiagnosis” and interval cancers.^{16,17} Additional imaging modalities that are effective for dense breasts include ultrasound, digital breast tomosynthesis, contrast-enhanced magnetic resonance imaging (MRI), and contrast-enhanced mammography.¹⁸ Supplementing mammogram screening with MRI or ultrasound screening can improve breast cancer detection in women with category C or D breast density. Supplemental MRI finds an additional 16 breast cancers per 1000 screens after normal mammogram findings in women with dense breasts, but this can be difficult for FPs to access for their patients.^{19,20} Supplemental ultrasound screening detects an average of an additional 2 to 3 cancers per 1000 women screened after normal mammogram findings in women with dense breasts,¹⁹ and 1 Canadian centre detected 7 more cancers for every 1000 screens of women with dense breasts.²¹ The decision to pursue supplemental screening in women with dense breasts should be a shared decision based on patient preference, and discussions should include not only the benefits but also the risks, such as the possibility of recalls and benign biopsies. Currently, supplemental ultrasound screening is funded in British Columbia and Alberta for women whose breast density is categorized as C or D; in Prince Edward

Figure 1. Mammogram examples that correspond to categories of the American College of Radiology Breast Imaging Reporting and Data System for grading breast density: **A**, fatty-replaced, low-density tissue; **B**, tissue with scattered areas of fibroglandular density; **C**, heterogeneously dense tissue; and **D**, extremely dense tissue.



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Island for women with category D density; and in Quebec for women with category D density and a family history of breast cancer.^{1,22} Ontario Health has recently recommended publicly funding supplemental screening as an adjunct to mammography for people with extremely dense breasts.²³

The International Breast Cancer Intervention Study (IBIS) risk assessment tool is extremely helpful for FPs in determining optimal management for women with dense breasts.²⁴ This tool incorporates breast density in estimating a woman's lifetime risk of developing breast cancer. Lifetime breast cancer risk is a key detail to include in shared decision-making discussions with patients about individual risk and breast cancer screening. Supplemental ultrasound scanning should be considered seriously in women whose lifetime risk of developing breast cancer is 15% or higher.²⁵ Women are accepted into the High Risk Ontario Breast Screening program if their lifetime risk is 25% or greater based on personal and family history.²⁶

Checklist for shared decision making

So, what should FPs do if they receive a mammogram report showing that a patient has dense breasts? What should an FP say to a patient who is notified directly of her breast density by a screening program and comes in to discuss this issue? The following checklist will guide FPs in counselling patients with dense breasts and facilitate appropriately informed shared decision making:

- Address any modifiable factors that may be contributing to breast density (eg, hormone exposure, diet).

- Address modifiable risk factors that may increase the risk of breast cancer (eg, smoking, postmenopausal obesity, sedentary lifestyle).
- Explain the increased risk of breast cancer in women with dense breasts.
- Explain the reduced effectiveness of screening mammography in women with dense breasts.
- Encourage these women to be aware of their breasts and act on any changes that they notice.
- Do not be reassured by a recent normal mammogram result if your patient with dense breasts presents with a new breast finding.
- Order yearly mammogram screening for eligible women with category D breast density. Annual mammogram screening is done automatically in many Canadian screening programs, but not in all.¹³
- Discuss the risks and benefits of supplemental screening. Women with dense breasts can benefit from MRI or ultrasound examinations in conjunction with mammograms.
- Become familiar with the IBIS tool to help quantify an individual's risk.²⁴ Women with a lifetime risk of breast cancer 15% or higher should be considered for supplemental MRI or ultrasound screening.²⁵ Women with a lifetime risk of 25% or greater may qualify for high-risk screening programs, where they are available.²⁶ 

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Competing interests
None declared

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The opinions expressed in commentaries are those of the authors. Publication does not imply endorsement by the College of Family Physicians of Canada.

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This article has been peer reviewed.

Can Fam Physician 2023;69:748-50 (Eng), 752-4 (Fr).

DOI: 10.46747/cfp.6911748

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