Why breast density notification matters

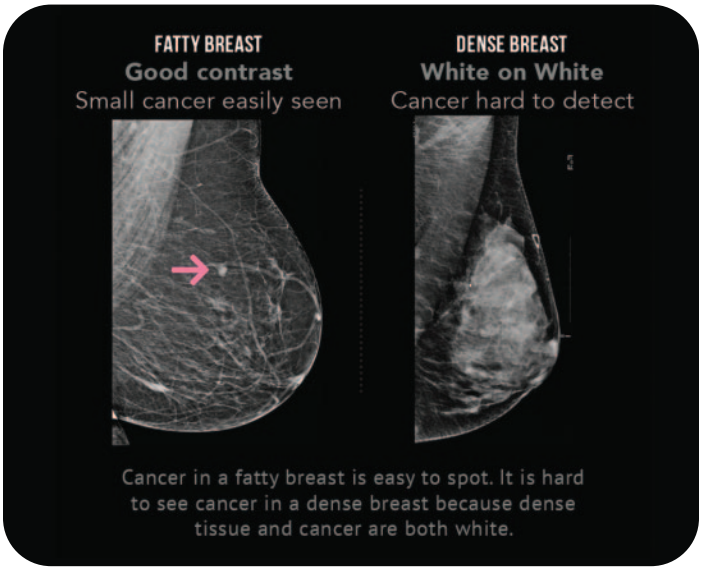
> Provincial government has committed to informing women of their breast density

Dr. Paula Gordon, Dense Breasts Canada

Kathy Kaufield of Saint John found her breast cancer by fluke. While on a business trip in 2015, she didn't have the shower puff she regularly used at home. When her soapy hand grazed the underside of her left breast, she felt a lump. She thought it couldn't be cancer. After all, she just had a negative mammogram five months earlier.

Kathy didn't know she had dense breasts, and she didn't know the implications of dense breasts. She wasn't aware that she shouldn't trust her mammogram as much as she had. Unfortunately, like many women, she didn't know she should have been more vigilant with her monthly breast self-exams.

Following surgery, 16 rounds of chemotherapy, and six weeks of radiation, Kathy began advocating for women in New Brunswick to be informed of their breast density. Premier Blaine Higgs and Health Minister Ted Flemming have committed to informing women of their breast density after routine screening.



Dr. Paula Gordon is a clinical professor in the Department of Radiology at the University of British Columbia.

What is breast density?

Every woman's breasts are composed of fat and breast tissue, but the proportions vary. There are four categories of breast density. Categories C and D are considered "dense." Dense breasts are normal. Over 40 per cent of women aged 40+ have dense breasts. Approximately 40 per cent of women have heterogeneously dense breasts (Category C) while 10 per cent have extremely dense breasts (Category D).

How is breast density determined?

Breast density is determined only on a mammogram. It cannot be determined through physical examination. Most commonly, breast density is determined by a radiologist. Software can also determine density from the mammogram, but it is not widely used in Canada.

Why does breast density matter?

1. Dense breasts reduce the accuracy of a mammogram. A missed diagnosis like Kathy's is more likely with dense breasts because dense breast tissue and cancer both appear white on mammograms, resulting in masking. Mammograms are 92-100 per cent effective in fatty breasts but only 50 per cent effective in the highest density.
2. Dense breasts are an independent risk factor for breast cancer. The denser the breasts, the higher the risk. Cancer occurs four to six times more often in women with the highest level of density than in women with the lowest level. Breast density is a more prevalent risk factor than family history.
3. Dense breasts result in higher rates of interval cancers. As seen in Kathy's case, women with dense breasts may find a lump after a negative mammogram. "Interval cancers" are 18 times more common in women with dense breasts. Interval cancers are larger at diagnosis and more often node-positive and more aggressive subtypes. They need more aggressive treatment and are more likely to require mastectomy, axillary dissection and chemotherapy. They have a poorer prognosis compared to screen-detected cancers.

What should physicians discuss with women who have dense breasts:

- any other risk factors the patient may have; breast density should be placed in context with other risk factors and risk reduction strategies;
- the importance of having regular mammograms and consideration of annual mammograms for Category C and D;
- the importance of regular self-exams;
- modification of lifestyle factors: maintaining a healthy weight, increasing exercise, decreasing alcohol intake and hormone use.

Evidence of benefits of supplemental screening for women with dense breasts

Mammography is the only screening test proven to reduce deaths due to breast cancer; it is the only modality studied in a randomized control trial (RCT). The key to mortality reduction by screening is finding cancers smaller, and before they have spread to the lymph nodes, and reducing the incidence of advanced cancers. It has been known since 1995 that ultrasound detects small, invasive node negative cancers in dense breasts that were missed on mammograms. Subsequent research from multiple institutions found three to four cancers per 1,000 women screened. An RCT of supplementary ultrasound screening is underway in Japan and is showing greater cancer detection and reduced interval cancers.

The Canadian Association of Radiologists' position paper states, "supplemental screening breast ultrasound may be considered for patients with dense breast tissue (C & D density categories)," and annual mammography is suggested for all women with extremely dense breast tissue (Category D).

Anxiety caused by a recall after a screening ultrasound is expected. Most women are willing to accept the transient stress associated with a recall or even a needle biopsy in exchange for avoiding an advanced cancer diagnosis.

New Brunswick is taking a critical step in saving lives by committing to inform women of their breast density after routine screening. Physicians have a key role to play by considering breast density in context of other risk factors, assessing a woman's overall risk, identifying higher-than-average risk patients who need increased surveillance (i.e. Ultrasound and MRI), discussing supplemental screening benefits and harms, and encouraging women to do regular breast self-examination and reduce their modifiable risk factors.

An excellent reference of medically sourced information is **www.densebreast-info.org**.

Dr. Paula Gordon is a clinical professor in the Department of Radiology at the University of British Columbia. She is a volunteer advisor to both Dense Breasts Canada, a Canadian patient advocacy group, and Dense Breast Info, an American educational website. In recognition of her research and teaching, she has been awarded the Order of British Columbia.