

Quality of screening mammography

We thank Dr Gordon for her response¹ to our article on the quality of screening tests that was published in the May issue of the journal.² It is good to know that radiologists read *Canadian Family Physician*. We all wish that breast cancer screening could dramatically reduce suffering from this dreaded disease. However, hope and belief are not enough: we need to recognize the limitations of current methods, not delude ourselves into activities that are minimally effective or sometimes harmful.^{3,4} We understand that many radiologists focus on attaining maximum test sensitivity, as they do not wish to miss any cases of cancer. However, as we have discussed in this Prevention in Practice series, increased sensitivity detects more of what is labeled as disease, but unfortunately not all these women benefit from that diagnosis, despite being treated intensively.⁵ Therefore, our group differs in that we also recognize the need for balance and to reduce harm caused by efforts to increase sensitivity.

In her letter,¹ Dr Gordon disagrees with some of our arguments but does not respond to the serious concerns we raised about variation in quality of screening, specifically mammography, across Canada. Her quotation of the evidence is selective and she ignores the related editorials and commentaries in those same journals that question the assumptions and conclusions of her references.^{6,7} She evades the concerns we expressed about quality and standards, recall rates for abnormal test results, and extra harms caused by more frequent screening and the use of new technologies. She provides no alternative guidance on how family physicians can be reassured about the quality of their local mammograms. We will address her assertions in turn, to enable family physicians to understand both sides of this argument about the quality of screening mammography.

Selecting the right patients and rescreeing at the right interval. Dr Gordon asserts that mammography should start at age 40 and that women should be screened annually. She asserts that incidence of breast cancer “rises sharply around the age of 40.”¹ In **Figure 1**^{8,9} we show the most recently available Canadian 5-year incidence and mortality rates of breast cancer by decade

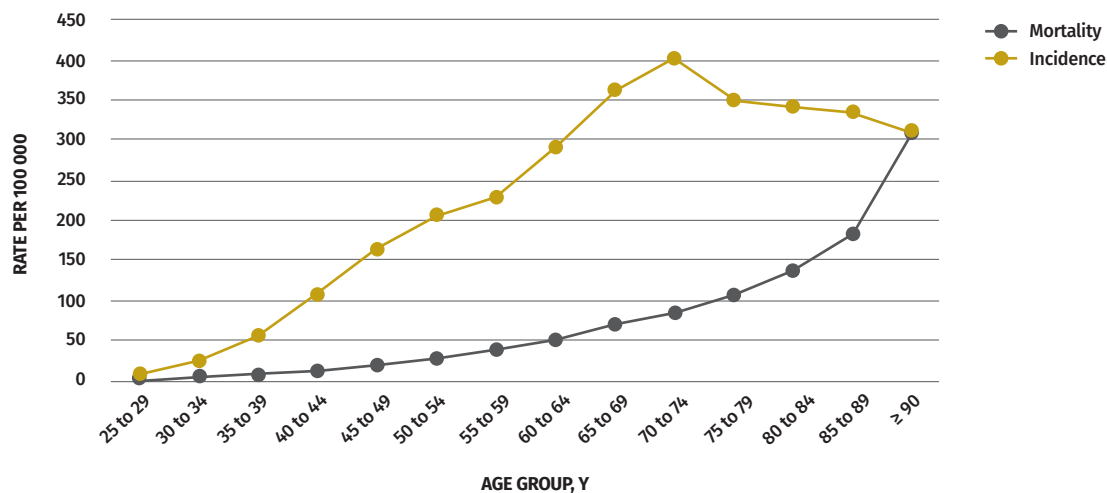
of life. There is no sharp rise, but a steady progression. The risk of being diagnosed with breast cancer is about 1350 women per 100 000 aged 40 to 49. The risk of dying is about 148 women per 100 000 over those 10 years. However, screening will only reduce mortality by a fraction of that, optimistically 30% (relative risk reduction). Optimistic estimates therefore suggest that screening will save at best 50 per 100 000 women: over 10 years and over the subsequent age decade of 50 to 59 it would save about 100 per 100 000 women. So 99.8% of women will have no benefit; however, at each screening 5% to 9% of women will have a positive test result, some of whom will then go on to have a biopsy, and a few will be overdiagnosed with cancer, the treatment for which will cause extra distress, yet provide no benefit.¹⁰ Estimates by others are similar.¹¹

Dr Gordon also asserts that cancer progresses more rapidly in young women and therefore annual screening in this age decade will be more effective than waiting until a more favourable risk-to-benefit balance. And she accuses provincial guideline decisions to not screen from age 40 of being made for financial reasons.¹ There is no evidence for either. Starting earlier and screening more often with poor-quality mammography will cause more harm. There is a counterargument that screening is less beneficial for rapidly growing tumours owing to their aggressive nature.¹²

Ensuring high-quality tests. Dr Gordon tells us the Canadian Association of Radiologists (CAR) has increased the requirement for numbers of mammograms read to 1000 per year from 480 per year, which was the number in February 2019 when we wrote our article.² But CAR's website also informs us that the change was long overdue, and there was enough evidence to show this 10 years ago!¹³ Many countries require 2000 to 5000 reads per radiologist to ensure accurate quality measurement. If British Columbia¹⁴ and Nova Scotia¹⁵ require 2500 reads, can she inform us why other provinces do not call for a similar standard? In addition, we note that simply reading large numbers of mammograms is not enough: there must be double reading and feedback for continuing improvement, but this is not required for accreditation. Dr Gordon assures us that “all the

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Figure 1. Age-specific incidence and mortality rates for breast cancer in Canada: 5-year average from 2012 to 2016.Data from Statistics Canada.⁵⁹

provincial screening mammography programs ... monitor performance metrics of the radiologists.¹¹ Yet neither CAR nor her reference, the Canadian Partnership Against Cancer (CPAC),¹⁶ provide evidence of this. That CPAC report shows wide variation in recall rates among provinces, as shown in the CPAC graph we reprinted in our May article,² but Dr Gordon does not address the reasons for such large variation. The Nova Scotia Breast Screening Program annual report¹⁵ describes the approach to feedback on images that radiologists have reported, as well as some of the results of their monitoring. The BC Cancer annual report on screening mammography describes variation in detection rates among areas, but not how the agency assists radiologists to improve their performance.¹⁴ How do radiologists in other provinces currently ensure high quality?

Issues in cancer screening. Dr Gordon acknowledges the higher recall rate and biopsy rate in North America than in Europe, and she is correct that the current practice of needle biopsy is much less harmful than the earlier surgical approaches.¹ However, her dismissal of the anxiety that occurs while waiting for biopsy results is based on a small trial in which a radiologist gave 1-hour lectures to women, many of whom were young and had not had a mammogram, and asked them if they thought they might be anxious if they had a biopsy.¹⁷ Family physicians witness the anxiety experienced by women awaiting further testing after a positive mammogram, and often for a long time thereafter,¹⁸ and provide the bulk of supportive care for these women. She also references the organization Dense Breasts Canada, which repeats her arguments,

without new information.¹⁹ We agree with her assertion that “each woman should be informed of the true benefits and risks and be allowed to decide for herself whether to be screened.”¹¹ The Canadian Task Force on Preventive Health Care presents such data, based on the best trial evidence.²⁰ We recognize that radiologists disagree with those, arguing that they are based on older research. We challenge Dr Gordon and her colleagues to provide better information based on actual probabilities in each setting across Canada.

The US Preventive Services Task Force examined the evidence about newer imaging techniques—tomosynthesis, magnetic resonance imaging, and ultrasound—of dense breasts, and while these do have greater sensitivity for cancer, the task force found insufficient evidence that these technologies improve long-term outcomes.²¹ Adding screening ultrasonography more than doubles breast biopsies and short-interval follow-up without increasing cancer detection or reducing interval cancer incidence.²² Using ultrasound can only be justified if there is a reduction in deaths among those extra cases found and treated. It is incumbent on those who recommend interventions to prove their value, rather than expecting the public purse to fund them until they are proved ineffective. A good example is the use of computer-aided detection, which was touted as a great advance but has failed to add value.²³

Digital breast tomosynthesis is being tested against standard mammography in a large trial.²⁴ Among the 100 or so sites, several will be in Canada. However, radiology advocates such as Dr Daniel Kopans believe that they already know the answer^{25,26}; this is concerning, as such bias can undermine a trial, as happened with the

PLCO (Prostate, Lung, Colorectal, and Ovarian) trial of prostate-specific antigen screening.

In the context of shared decision making, we need to provide the best data to properly inform women. The benefit of mammography screening is smaller than anticipated and harms are more than trivial (false positives and overdiagnosis). Indeed, the French inquiry into mammography, after obtaining the perspectives of women, concluded that the program should be either shut down or undergo a major revamp, because it was estimated that it creates more harm than good.²⁷ We need to stop imposing our values on women and recognize they have a right to decide for themselves whether they should be screened. But for this to happen, women need unbiased, easily understandable information.

Considerations for conflicting messaging. Clinical practice guidelines can improve health care delivery. Yet intellectual biases and financial conflicts of interest threaten their validity and might lead to overuse of health care services.

More is not necessarily better in medicine; if anything, patient outcomes may be worse the more “care” they receive. Every medical test, procedure and treatment adds risk against potential benefit, and some may lead to more harm than good.²⁸

Quality assessment of guidelines rates the Canadian and US task force guidelines highly.²⁹ It might be merely a coincidence that those who argue most strongly in favour of expanding mammography services have considerable financial investments in the field, as well as strong emotional conflicts of interest.⁷ Advocates of screening mammography would do better to improve and demonstrate its effectiveness.

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Competing interests

Members of the Canadian Task Force must declare any conflict of interest in regard to any guideline produced. The authors of this letter declare no related financial conflicts, although we do have an intellectual interest in defending the analyses to which we contributed and the conclusions we reached.

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Prescriptions for happiness

In his editorial “Prescribing happiness” published in the September issue of *Canadian Family Physician*, Associate Scientific Editor Dr Roger Ladouceur invited you to share “sound advice to help your unhappy patients on their path to happiness.”¹ Ladouceur’s call was met with many suggestions from our fellow readers.