

Who does not benefit from our national breast screening programme and who should have oversight?

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ABSTRACT

The recent report on the delays for mammography encountered by women in the Wellington Region reminds us that the organisation of cancer screening is far from straightforward, and we highlight these complexities in our viewpoint article. Screening can reduce mortality from cancer, but it is costly, and the benefits are many years in the future. Cancer screening can result in some individuals being over-diagnosed and over-treated, can impact on the services for symptomatic patients and can exacerbate inequities. Reviewing the quality, safety and acceptability of our breast screening programme is important but there is a need to acknowledge the role of the resulting clinical services, including the opportunity cost to symptomatic patients who seek healthcare in the same system.

The recent report on the delays for mammography encountered by women in the Wellington Region reminds us that the organisation of cancer screening is far from straightforward. Screening can reduce mortality from cancer, but it is costly, and the benefits are many years in the future. Cancer screening can result in some individuals being over-diagnosed and over-treated, can impact on the services for symptomatic patients and can exacerbate inequities. It is therefore essential that the decision makers (Ministers, Crown Agencies and their executives) are informed using the best scientific advice available. In New Zealand this advice is provided by the National Screening Advisory Committee (NSAC) and is based on consideration of the criteria outlined by the National Health Committee in 2003.¹ We thus have a national screening unit that is responsible for the organisation of population screening, while the general health services are responsible for the diagnosis, treatment and follow-up of those found to be at high risk from screening. The provision of screening and follow-up has been devolved to various screening units, radiology suppliers and hospitals sometimes resulting in variations in the delivery of care. Reviewing the quality, safety and acceptability of our breast screening programme is important but there is a need to acknowledge the role of the resulting clinical services, including the opportunity cost to symptomatic patients who seek healthcare in the same system.

Breast Screening Aotearoa (hereafter called BSA) was established in New Zealand in December 1998,

and at that time provided screening to asymptomatic women aged 50–64 years. In 2004, the eligible age range was extended to include all women aged 45–69 years. The programme before that moment covered 356,000 New Zealand women, and the extension translated into an extra 238,000 women in the two new age categories.² Now, there is discussion to increase the upper end of the screening age to 74 years—which means that 42,000 additional mammograms would be performed each year, generating the need for 1,600 extra appointments to follow-up mammographic findings.³ This does not take into account the additional perioperative work to address increasing age-related comorbidity. In the context of delays to screening over 2020–2021, these resource demands become increasingly significant. It is estimated that 28,500 breast screens were missed during this time and although it is expected to be cleared by the end of June 2023, it impacted Māori and Pasifika women disproportionately, which highlights the necessity to achieve equity for these groups.⁴ Only 45% of all breast cancers are diagnosed through the screening programme,⁵ reinforcing the work required to optimise coverage for women in the current age range. There is already an increasing gap between workforce demand and supply with specialist workforce shortages across each step of the screening pathway, from diagnostics to treatment. The age increase would require additional radiologists, radiographers, BSA-accredited surgeons, BSA-accredited pathologists

and support staff. All service providers would require new sites or site extensions and new equipment. In many places in New Zealand, BSA and symptomatic breast clinics share equipment and resource. Screening services do not operate in a vacuum and therefore these extra demands on a health system will have unintended negative consequences if resources are shifted away from any symptomatic patient accessing a symptomatic breast service in New Zealand, as well as women who are identified as being high risk requiring more intensive surveillance. Breast radiology—which incorporates mammography, ultrasound, and biopsy—is central to the “modern breast clinic” and aims to address women presenting with symptoms and signs of breast disease. Due to increased awareness of breast disease as a result of public campaigning and media, there is an increased volume of breast referrals allowing detection of breast cancer at an earlier stage, but this is accompanied by a much larger number of women with benign conditions with high expectation for rapid diagnosis. Moreover, as experience with breast imaging and knowledge of risk evolves, radiologists and surgeons are faced with a demand for more imaging, and new technologies, even in the setting of screening. In 2019, it became mandatory in many places throughout the United States of America for “mammography providers” to report breast density to all women undergoing mammography because it is a marker of increased risk of breast cancer.⁶ It followed that for these women a complementary ultrasound of both breasts should be recommended. Due to the increase in labour required to ultrasound both breasts (40–45 minutes), in New Zealand, it would not be feasible to institute such an adjunct in all women with a breast density over 50% presenting to screening nor to a public breast clinic.

Over-treatment remains a significant concern in breast screening programmes world-wide, with estimates of over-treatment that lie anywhere between 10–22% in randomised controlled trials.⁷ Ductal carcinoma *in situ* (DCIS) was rarely diagnosed prior to breast screening, but makes up 20–25% of all screen-detected “breast cancers” world-wide.⁸ In New Zealand, it constitutes 16.5% of all breast cancers, with 47.6% being high grade.⁵ It is often referred to as Stage 0 breast cancer, yet DCIS is a non-invasive non-obligate precursor of breast cancer, the management of which includes breast-conserving surgery or mastectomy, adjuvant radiotherapy and in some countries endocrine therapy. In 2012, Sir Michael

Marmot identified that women with DCIS, labelled as “cancer patients” live with the negative impact of anxiety and sequelae of treatment despite the fact that most DCIS lesions will never progress to invasive disease.⁹ This has led to several large-scale international trials that are investigating the natural history of low-grade DCIS in an attempt to de-escalate treatment for tens of thousands of women world-wide.^{10,11} Overall, approximately 70% of all women diagnosed with DCIS in New Zealand undergo breast-conserving surgery (the remainder undergo mastectomy) and approximately 75% of all women will be referred for radiotherapy. Although this is rather simplistic because DCIS exists in a spectrum of severity from low grade to high grade, most specialists acknowledge that high-grade DCIS is the most likely to undergo transformation, although again that risk is not well defined due to a lack of evidence.

One unforeseen consequence of the age extension in 2004 was a reduction in the coverage of Māori women in the 50–64 years age group in New Zealand.² BSA is a voluntary programme. The colorectal cancer screening programme, which was developed without oversight from NSAC, is based on a national register and to which eligible members of the population are invited and can opt off, while BSA is an opt-on programme. That is, women must first be informed about the programme, and then call in or enrol online once they reach the eligible screening age. There exists significant inequity both in terms of screening coverage and outcomes between Māori women and non-Māori non-Pasifika women in New Zealand. Māori women consistently have significantly lower rates of screening coverage than both Pasifika and non-Māori, non-Pasifika women, yet they have a 39% higher incidence of breast cancer than their non-Māori, non-Pasifika counterparts.⁵ Both Māori and Pasifika women are more likely to present with non-BSA (symptomatic) cancers than non-Māori non-Pasifika, and thus more likely to die from their disease. Notwithstanding this, Māori women participating in BSA experience a significant survival benefit with a 56% lower breast cancer mortality if they have a screen-detected breast cancer.⁵ Māori and Pasifika women remain priority groups for BSA, yet despite a recommendation for a national register in 2011 to improve coverage, this is yet to take effect. Those instituting screening programmes must consider that just by the nature of people likely to present to screening, existing disparities will be widened, and there exists an obligation under Te Tiriti o Waitangi to eradicate these.

Breast cancer is the most common cancer to affect women in New Zealand and the second most common cause of death. Our national mammographic screening programme reduces breast cancer mortality by an estimated 30% in regularly screened women.¹² While outcomes for Māori and Pasifika women identified through screening are the same as for others, there are substantial inequities in the diagnosis, treatment and outcomes for the 55% of women who are diagnosed symptomatically.¹³ However, while the BSA Quality Improvement Review is valuable it does not address the fact that our national screening programmes are running within a health system under pressure from workforce shortages and other competing demands. The clinicians and organisations responsible for the diagnosis treatment and outcomes of women identified through screening do not seem to play a critical role in the review's recommendations. One criticism by the Epidemiological Review was that there appears to be little effective linkage between the BSA records and clinical records for all women diagnosed with breast cancer. Currently the governance of our cancer screening programmes is confusing. Te Manatū Hauora – Ministry of Health is the Government's primary advisor on health, priority setting, policy and

system performance and would appear to be the logical home for NSAC so that expert advice could be directly available to the Director-General and the Minister on screening policy. Cancer screening is managed by a division within the new Public Health Unit also responsible for immunisation. Following the concerns over delays in offering mammograms to women in the Wellington Region, the review recently released¹⁴ looked at the performance of its sister division within Te Whatu Ora – Health New Zealand. Te Whatu Ora and Te Aka Whai Ora – Māori Health Authority are now developing an Action Plan in response to the recommendations with a Pae Whakatere to oversee implementation. A breast screening program is more than just a delivery of mammograms to find potential early breast cancers—rather, it must be part of an integrated service providing early diagnosis and treatment to all women with breast cancer. It is essential that those clinical experts in the field are therefore included in the design and delivery. This is happening with the National Breast Cancer Quality Performance Indicators being developed by Te Aho o Te Kahu, the Cancer Control Agency. The principle Simplify to Unify¹⁵ is supposed to be driving the reforms, but when we come to improving breast cancer outcome it seems we are tending to complicate and divide.

COMPETING INTERESTS

Dr Ineke Meredith sits on the Clinical Advisory Group for the Breast Cancer Foundation National Register. There are no other conflicts of interest to declare.

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