Projected breast cancer incidence in Aotearoa New Zealand to 2045: national, regional and ethnic patterns with implications for equity and risk-based screening

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ABSTRACT

INTRODUCTION: Breast cancer is the most diagnosed cancer among women in Aotearoa New Zealand, with incidence rates among the highest globally. Māori and Pacific women experience higher mortality and later-stage diagnosis, reflecting more aggressive cancers, symptomatic detection and systemic barriers to care. Previous projections have not reported results by both ethnicity and region, limiting their use for regional planning.

METHODS: Female breast cancer incidence to 2045 was modelled using age-period-cohort Poisson regression, stratified by age, prioritised ethnicity and Health New Zealand – Te Whatu Ora region. Time weights were used to adjust for recent trends, and uncertainty was quantified using 1,000 bootstrap iterations incorporating variation in case counts and population estimates. Age-standardised incidence rates (ASRs) were calculated for observed and projected data.

RESULTS: By 2045, annual cases were projected to increase by 47% to 5,243, while the national ASR remained broadly stable at 98.6 per 100,000 (+3.4%). The Northern Region was projected to have the largest absolute increase (+55%), and Te Manawa Taki the largest rise in ASR (+8%). Māori and Pacific women were projected to continue having the highest incidence rates. Māori cases nearly doubled (+91%). Asian women experienced the largest proportional increase in case numbers (+215%), driven by population growth and ageing.

CONCLUSION: Breast cancer cases will increase substantially by 2045 despite stable national rates. Ongoing inequities for Māori and Pacific women and rising numbers among Asian women underscore the need for ethnically responsive screening and equity-focussed cancer control strategies. Risk-based approaches may improve detection and manage future screening demand.

Breast cancer is the most commonly diagnosed cancer among women in Aotearoa New Zealand, with incidence rates among the highest globally.[1] Māori women have a 60% higher breast cancer mortality rate compared with European women.[2] Pacific women also experience disparities in incidence and mortality outcomes, including survival.[3] These inequities are related to a number of factors: Māori and Pacific women are less likely to be diagnosed through routine breast screening and more likely to present symptomatically with advanced or biologically aggressive disease, including *de novo* metastatic breast cancer.[3–5] Furthermore, systemic inequities and factors such as socio-economic deprivation, comorbidities and geographic inequities contribute to survival differences.[3,5]

BreastScreen Aotearoa (BSA), the national biennial mammographic screening programme, plays a critical role in early detection. Approximately 45% of breast cancers are diagnosed through the screening programme.[6] However, persistent inequities in screening rates remain, with coverage for Māori women continuing to fall below the national target and with variation across regions. The recent BSA review[6–8] recommended improving the responsiveness of BSA to communities and continuing to focus on strategies to remove barriers and ensure screening services are accessible. A higher proportion of Māori, Pacific and Asian women develop breast cancer before age 45, meaning a greater share of their cancers arise outside the eligible age range of the national screening programme. Among Pacific and Asian women, more than one in five invasive breast cancers occur before age 45, compared with about one in 10 among New

Zealand European women.[9] As a result, Māori and Pacific women are more likely to be diagnosed with advanced disease, limiting the potential benefits of screening.[3,10]

Age-period-cohort (APC) modelling is an established approach for projecting future cancer incidence, providing insight into how demographic changes and historical trends may influence future disease burden. In Aotearoa New Zealand, few applications have produced breast cancer projections disaggregated by ethnicity and region. Existing examples generally report national-level totals and do not present results by both cancer type and ethnicity.[11] This regional and ethnic specificity is essential to support responsive planning and equitable cancer control policy.

This paper addresses these gaps by presenting national and regional projections of female breast cancer incidence in Aotearoa New Zealand to 2045. Incidence is stratified by ethnicity and Health New Zealand – Te Whatu Ora region, allowing a more nuanced understanding of future trends. These projections are aimed at informing equitable screening programmes, resource allocation and future healthcare planning.

Methods

Data sources

National cancer registry data for Aotearoa New Zealand were used to model trends in female breast cancer incidence from 2001 to 2022 and to generate projections to 2045.[12] The dataset was comprised of all primary registrations of female breast cancer (International Classification of Diseases, 10th revision [ICD-10] code C50), stratified by calendar year, 5-year age group, prioritised ethnicity (Māori, Pacific, Asian, and European/Other) and Health New Zealand region. Population estimates and projections were sourced from Statistics New Zealand, aligned to the same demographic and geographic strata.

Modelling approach

Incidence was projected using an APC framework implemented through generalised linear models with a Poisson distribution and log link. The outcome variable was the count of incident breast cancer cases, with the natural logarithm of the corresponding population included as an offset to directly model incidence rates. Covariates comprised categorical age group, calendar year (period) and birth cohort (derived as year minus age), with additional stratification by prioritised ethnicity and region.

The APC structure, incorporating both period (calendar year) and cohort effects alongside age, is similar to the modelling approach used in the Nordpred cancer prediction model developed in Norway.[13] While Nordpred provides a methodological foundation, the present model was tailored to the Aotearoa New Zealand context, accommodating flexible stratification by ethnicity, region and age group, and preserving small or zero case counts across strata.

Although age, period and cohort are inherently collinear, their combined inclusion was retained to capture both of their underlying influences on incidence trends. Small or zero counts were retained, and non-parametric bootstrapping (discussed later) was used to stabilise estimates in such strata. Population counts were treated as fixed offsets to enable direct estimation of incidence rates.

To emphasise recent trend data without disregarding historical patterns, a time-based weighting scheme was applied in the modelling. Incident cancers were weighted according to their relative year, with weights increasing linearly and then raised to the power of 1.5. The choice of 1.5 as the exponent reflected a compromise between placing greater emphasis on recent years and avoiding overly steep discounting of earlier data. All modelling was conducted in R (version 4.4.3; R Core Team, 2024).

Bootstrap procedure and projection uncertainty

Uncertainty in the projections was quantified using non-parametric bootstrapping. For each of the 1,000 iterations, historical cancer registry data were resampled with replacement at the level of age, period and ethnicity strata, preserving the structure of the time series while allowing variation in the realised counts within strata. This approach generated multiple pseudo-datasets that represent the random variation that could occur if the registry data were repeatedly observed under similar conditions. Population denominators were perturbed multiplicatively by independent normal noise with mean 1. The standard deviation increased over the projection horizon to reflect growing uncertainty in population forecasts: 0.005 for 2023–2025, 0.010 for 2026–2030, 0.015 for 2031–2035, 0.020 for 2036–2040 and 0.025 for 2041–2045. Each resampled dataset was fitted with a Poisson APC model to generate projected case counts through to 2045, with projections derived by exponentiating the linear predictor. The 1,000 resulting projections were summarised as the median across bootstrap replicates, with 95% uncertainty intervals (UIs) defined by the 2.5th and 97.5th percentiles. This bootstrapping process captured the statistical uncertainty in model estimates and variability due to finite case numbers within strata, while also incorporating uncertainty in the underlying population denominators and their longer-term projections.

Age-standardised rates (ASRs)

ASRs were calculated for both observed and projected data spanning 2001 to 2045, with estimates produced at the national level by prioritised ethnicity and separately by Health New Zealand region. The 2001 World Health Organization population standard was applied.

Study approval

This study was deemed low risk and out of scope for review by the Health and Disability Ethics Committee. Locality authorisation, including Māori research review, was granted by Health New Zealand – Waitematā District, Research & Knowledge Centre (approval code: WAI20420).

Results

National and regional projections

Between 2020 and 2022, an average of 3,555 new female breast cancer cases were diagnosed annually in Aotearoa New Zealand (Table 1), corresponding to an ASR of 95.4 per 100,000 women (95% confidence interval [CI] 93.5–97.3). The number of cases is projected to increase over the next two decades, reaching 4,606 cases in 2035 (95% UI 4,418–4,789) and 5,243 cases in 2045 (95% UI 4,937–5,552). This represents a 47.4% increase in annual case numbers compared with 2020–2022, equivalent to an average annual increase of 1.7%.

Despite the rise in case numbers, the national ASR is projected to remain mostly stable, increasing to 97.0 per 100,000 (95% UI 91.9–102.3) in 2035 and 98.6 per 100,000 (95% UI 91.8–105.7) in 2045. The total projected change in the ASR from 2020–2022 to 2045 is +3.4%, indicating that the growth in case counts will primarily reflect demographic changes, particularly population growth and ageing.

All four Health New Zealand regions are projected to have an increase in annual breast cancer case numbers, although the magnitude of change differs across regions. The Northern Region is projected to have the largest absolute increase, with cases rising from 1,271 in 2020–2022 to 1,968 in 2045, a 54.8% increase overall. The ASR in the Northern Region is projected to decrease slightly from 96.3 (95% CI 93.2–99.5) to 95.9 (95% UI 88.7–103.2), representing a decline of 0.4%.

In Te Manawa Taki, case numbers are projected to rise from 718 to 1,104 between 2020–2022 and 2045, an increase of 53.8%. Unlike the Northern Region, Te Manawa Taki is projected to see a rise in incidence rates, with the ASR increasing from 94.8 (95% CI 90.5–99.1) to 102.7 (95% UI 95.1–111.1), corresponding to an 8.3% increase, the largest of any region. The Central Region is also projected to see a rise in incidence, with case numbers increasing from 721 to 968 (+34.3%) and the ASR rising from 98.3 (95% CI 94.0–102.7) to 103.3 (95% UI 95.5–112.0), a 5.1% increase.

In Te Waipounamu, breast cancer cases are projected to increase from 845 in 2020–2022 to 1,203 in 2045, an increase of 42.4%. The ASR is projected to rise slightly from 92.5 (95% CI 88.7–96.4) to 96.1 (95% UI 88.9–104.2), a 3.9% increase.

Ethnic-specific projections

By 2045, breast cancer case numbers are projected to rise across all ethnic groups, though the magnitude of change differs. Among Māori women, annual cases are projected to increase from 534 in 2020–2022 to 1,021 (95% UI 960–1,085), representing a 91.2% increase. The corresponding ASR is projected to rise from 125.9 to 136.2 per 100,000 (+8.2%). Pacific women are projected to see cases rise from 216 to 398 annually (95% UI 371–428), an 84.3% increase, with the ASR remaining largely stable, shifting only from 126.8 to 127.5 per 100,000 (+0.6%).

For Asian women, case numbers are projected to more than triple from 299 to 942 (95% UI 877–1,005, +215.1%), the largest proportional increase of any group. Their ASR is expected to increase modestly from 65.1 to 68.4 per 100,000 (+5.1%). European/Other women will continue to account for the largest absolute number of cases, rising from 2,506 to 2,882 annually (95% UI 2,712–3,055), an increase of 15.0%. Their ASR is estimated to increase from 93.6 to 100.1 per 100,000 (+6.9%).

Discussion

This analysis projects a large increase in the

Table 1: National and regional breast cancer projections.

	National	**Northern**	**Te Manawa Taki**	**Central**	**Te Waipounamu**
2020–2022					
Observed[a]	3,555	1,271	718	721	845
ASR[b]	95.4 (93.5–97.3)	96.3 (93.2–99.5)	94.8 (90.5–99.1)	98.3 (94.0–102.7)	92.5 (88.7–96.4)
2035					
Projected[c]	4,606 (4,418–4,789)	1,684 (1,614–1,752)	970 (928–1,015)	877 (838–923)	1,075 (1,026–1,124)
ASR[d]	97.0 (91.9–102.3)	95.2 (89.9–100.7)	100.3 (94.4–106.5)	100.9 (95.0–107.5)	94.2 (88.6–100.1)
% Change in cases[e]	29.6%	32.5%	35.1%	21.6%	27.2%
2045					
Projected[c]	5,243 (4,937–5,552)	1,968 (1,848–2,082)	1,104 (1,036–1,174)	968 (907–1,032)	1,203 (1,127–1,277)
ASR[d]	98.6 (91.8–105.7)	95.9 (88.7–103.2)	102.7 (95.1–111.1)	103.3 (95.5–112.0)	96.1 (88.9–104.2)
% Change in cases[e]	47.4%	54.8%	53.8%	34.3%	42.4%
% Annual change cases[f]	1.7%	1.9%	1.9%	1.3%	1.6%
% Change ASR[g]	3.4%	−0.4%	8.3%	5.1%	3.9%

[a] Average observed cases per year over the period.
[b] Age-standardised rate (ASR) over the 3-year period with 95% confidence intervals.
[c] Projected cases with 95% uncertainty intervals.
[d] ASR of projected cases with 95% uncertainty intervals.
[e] Total percentage change in cases from observed 2020–2022 average.
[f] Annual percentage change represents the compound annual growth rate (CAGR) between the 2020–2022 average and 2045.
[g] Total percentage change in the ASR from observed 2020–2022.

Table 2: National breast cancer projections by ethnicity.

	Māori	Pacific peoples	Asian	European/Other
2020–2022				
Observed[a]	534	216	299	2,506
ASR[b]	125.9 (119.8–132.3)	126.8 (117.2–137.0)	65.1 (60.9–69.6)	93.6 (91.2–95.9)
2035				
Projected[c]	795 (761–832)	310 (293–328)	666 (628–700)	2,834 (2,717–2,956)
ASR[d]	133.2 (125.5–141.4)	124.6 (116.4–133.5)	66.9 (62.5–71.3)	97.9 (92.6–103.6)
% Change in cases[e]	48.9%	43.5%	122.7%	13.1%
2045				
Projected[c]	1,021 (960–1,085)	398 (371–428)	942 (877–1,005)	2,882 (2,712–3,055)
ASR[d]	136.2 (126.5–146.9)	127.5 (116.9–139.2)	68.4 (62.8–74.2)	100.1 (92.8–107.8)
% Change in cases[e]	91.2%	84.3%	215.1%	15.0%
% Annual change cases[f]	2.8%	2.7%	5.1%	0.6%
% Change ASR[g]	8.2%	0.6%	5.1%	6.9%

[a] Average observed cases per year over the period.
[b] Age-standardised rate (ASR) over the 3-year period with 95% confidence intervals.
[c] Projected cases with 95% uncertainty intervals.
[d] ASR of projected cases with 95% uncertainty intervals.
[e] Total percentage change in cases from observed 2020–2022 average.
[f] Annual percentage change represents the compound annual growth rate (CAGR) between the 2020–2022 average and 2045.
[g] Total percentage change in the ASR from observed 2020–2022.

number of breast cancer cases in Aotearoa New Zealand over the next two decades, despite relatively stable ASRs. By 2045, annual case numbers are projected to rise by nearly 50% nationally from around 3,500 to over 5,200 per year, driven primarily by population growth and ageing. While the overall incidence rate shows only modest changes, the burden of disease will increase in terms of absolute case numbers, placing additional demands on diagnostic, treatment and supportive care services.

Regional projections reveal some variation in future increases. The Northern Region is projected to see the largest absolute growth in case numbers, reflecting its projected growth and demographic profile. In contrast, the Central and Te Manawa Taki Regions are projected to see the largest relative increases in incidence rates, suggesting a growing concentration of need in these areas. Regional population composition, including differences in ethnic make-up, rurality and levels of deprivation, will be important considerations for future service planning to ensure equitable service capacity and access across regions.

Ethnic-specific projections continue to show the persistence of long-standing inequities in breast cancer incidence. Māori and Pacific women are projected to continue seeing the highest incidence rates, consistent with historical patterns of later-stage diagnosis, lower screening rates and systemic barriers to timely care.[2,10] The projected near doubling of cases among Māori and Pacific women points to a widening absolute disparity in disease burden, with implications for both health equity and service delivery. At the same time, Asian women are projected to see the largest proportional increase in case numbers, largely reflecting rapid population growth and ageing, with only modest increases in the incidence rate. These findings highlight the need for proactive planning to ensure that services are responsive to the needs of growing and diverse populations of Aotearoa New Zealand.

Although demographic change remains the principal driver of future breast cancer burden, shifting patterns in modifiable risk factors such as postmenopausal obesity and alcohol use could influence incidence trends. It is well established that postmenopausal obesity is associated with higher breast cancer risk, with each five-unit increase in body mass index (BMI) raising risk by approximately 12%, and around 9% of all postmenopausal breast cancers being attributable to excess body weight.[14,15] Alcohol consumption is also an established carcinogen, with even light drinking (one drink per day) increasing breast cancer risk, and the risk rising further in heavier drinkers.[16] Recent studies implicate binge drinking in particular as a strong factor in early-onset breast cancers.[17] Strengthening prevention strategies that target obesity, alcohol and modifiable behaviours represents an important complement to early detection and treatment. However, meaningful reductions in these risk factors will require approaches that extend beyond individual behaviour change and consider the broader structural and historical conditions.[18] Incorporating prevention within wider equity-focussed public health approaches offers the potential to reduce future incidence while narrowing inequalities in breast cancer outcomes.

These projections highlight the need for a comprehensive approach to breast cancer control, encompassing prevention, early detection and treatment. Screening will remain a critical mechanism for early diagnosis; however, persistent inequities in rates among Māori and Pacific women continue to require appropriate sustained interventions that respond to this identified need. Disabled people also experience barriers to screening, requiring tailored responses to ensure equitable access and support.[19] Addressing breast cancer outcome inequities and rising demand related to population growth and programme age extensions provides further opportunity to focus on equity in the screening programme. The anticipated rise in absolute case numbers across all groups further highlights the importance of ensuring adequate diagnostic capacity, workforce and treatment infrastructure, aligned to the broader direction of shifting breast cancer treatment and care into community-based settings. In addition, potential increases in survivorship will impact support and treatment services, particularly if the increase in survivorship is among those with active disease.

Future directions

The projected rise in case numbers will place increasing pressure on national and district-level screening infrastructure, which already faces workforce shortages.[8] Radiologist training, quality assurance systems and integration between screening, diagnostic and treatment services remain essential to maintain programme accuracy and timeliness, and patient experience as volumes increase. These aspects are emphasised in the recent BSA quality and safety review that identifies workforce sustainability as a key challenge to the future of equitable breast screening in Aotearoa New Zealand.[8] Geographical variation in cancer detection routes and treatment pathways were also highlighted as an issue, pointing to potential variation in screening access and access to treatment services. Future planning and service design will need to consider the regional and district variation in how services are currently delivered.

Local research has highlighted the importance of communication, cultural responsiveness and tailored support when navigating cancer care.[20] Embedding culturally grounded approaches, such as whakawhanaungatanga (building relationships and connection) and supporting tino rangatiratanga (self-determination),[21] alongside initiatives to improve access, needs to remain a high priority so that the benefits of early detection and treatment advances can be equitably realised. As breast cancer case numbers rise across all groups, there are opportunities for screening and treatment service development to build in cultural safety, community-led engagement and system responsiveness as core components of cancer control.[6]

Addressing the projected rise in breast cancer cases includes service capacity considerations as well as improvements to how screening is delivered, with particular opportunities in breast density reporting and personalised risk-based approaches.[6] One practical avenue for improvement is in the integration of breast density into routine screening and risk assessment. Breast density is both a recognised risk factor and a limitation of mammography, as cancers are more easily missed in denser tissue. Dense breasts appear to be more common among Māori and Asian women,[22,23] yet density is not currently routinely collected and reported in Aotearoa New Zealand. Several international programmes now inform women of their density and in some cases provide supplementary imaging such as tomosynthesis, contrast enhanced mammography or magnetic resonance imaging.[24,25] Incorporating breast density into BSA would make screening more responsive to risk, improve early detection for high-density groups and offer the potential for improvements in stage at diagnosis, particularly if accompanied by improved screening rates. However, incorporation of breast density reporting will come with potential future service implications, particularly consideration of cost, modality and approach for supplementary screening.

Personalised approaches to screening may also offer a way to respond to the projected growth in cases while making better use of limited resources. International trials, including MyPeBS in Europe, are assessing how tailoring screening frequency and modality to individual risk is both feasible and acceptable.[26,27] For Aotearoa New Zealand, this approach could be particularly relevant given that Māori and Pacific women are more likely to be diagnosed at younger ages and with aggressive tumour subtypes.[3] A move towards risk-based screening would allow higher-risk women to receive earlier or more intensive surveillance, while avoiding unnecessary investigations for those at lower risk. If designed with a focus on equitable implementation, such strategies could help to manage growing screening demand, improve early-stage detection among high-risk groups and support more equitable improvements in survival.

Emerging evidence suggests that artificial intelligence (AI) could support mammography reading by assisting radiologists, triaging scans and limiting radiologist review to high-risk scans, or replacing second readers in dual mammography reading systems. Studies overseas have demonstrated (including prospectively) that AI tools can maintain or even improve cancer detection accuracy while substantially reducing radiologist workload by prioritising cases requiring human review.[28–30] Evidence from a Danish screening programme shows that introducing AI reduced radiologist workload by about one-third while improving screening accuracy. Cancer detection increased from 0.70% to 0.82%, false-positive rates fell from 2.4% to 1.6% and recall rates dropped by 20%. A higher proportion of small invasive cancers were detected, suggesting earlier diagnosis.[30] In Aotearoa New Zealand, BSA is a very high-performing dual reading programme; therefore, careful consideration of implementation issues in early adoption of this technology is important. Aotearoa New Zealand is well placed internationally to elucidate the potential equity impacts and consumer and health professional impacts and perspectives, and ensure that the approach selected results in at least non-inferior programme performance and equitable outcomes. Over time, its use could expand to other aspects of breast cancer control, including quality assurance, risk stratification and optimising screening intervals, provided that robust local evaluation confirms safety, equity and clinical benefit. Any implementation would need to be accompanied by ongoing monitoring to ensure that AI complements rather than replaces clinical expertise and continues to support equitable outcomes across all population groups.

Limitations

Although bootstrapping was used to account for uncertainty and small numbers within strata, the projections may not capture the effects of future changes in risk factor prevalence, screening participation or diagnostic criteria. In particular, they do not incorporate the planned extension of BSA eligibility to women aged 70–74 years, which is expected to increase detection in this age group and raise overall case numbers by up to 150 annually.[6] Consequently, true future incidence may lie towards the upper end of the projected UIs. The UIs presented alongside our projections incorporate both statistical variation in model estimates and uncertainty in future population projections; however, they cannot fully account for all sources of potential error.

Population projections themselves are also uncertain, particularly over longer time horizons. Despite the regional projections factoring in expected shifts in age and ethnic composition over time, as well as projected growth patterns, there is always uncertainty around future migration trends that are not captured. Nevertheless, much of the anticipated growth in breast cancer cases reflects underlying expected demographic change, and the broad direction of the projected increase is unlikely to be materially altered by these limitations. For context, the projected total number of breast cancers ranges from 4,418 to 4,789 cases in 2035 and from 4,937 to 5,552 cases in 2045. These ranges illustrate that while the direction of change is robust, there remains some uncertainty around the true magnitude of the projected increase. The projections should therefore be regarded as plausible scenarios that describe the likely direction and relative magnitude of change, providing a useful guide for planning under a range of possible futures.

Undercounting of some population groups is a recognised limitation in Aotearoa New Zealand cancer data, particularly for people identifying with multiple ethnicities.[31,32] The use of prioritised ethnicity assigns individuals to a single group, which can obscure the experiences of those with more than one ethnic identity and underestimate the burden in some groups, such as Pacific peoples when counted as Māori. The broad Level 1 groupings used in this analysis may mask important heterogeneity within the Asian and Pacific populations. More detailed disaggregation, for example, by Chinese, Indian and Other Asian, or by specific Pacific sub-groups such as Samoan, Tongan and Cook Islands Māori, would provide a clearer understanding of differences in cancer risk and projected burden. However, the data required for such analyses, including consistent historical and projected population estimates at this level of detail, are not yet available. While the approach of using prioritised ethnicity does not capture the full complexity of ethnic identity, it remains the most practical method given current data systems and the need for population projections that align with this classification. This ensures consistency with national reporting standards and provides sufficient statistical reliability for Māori and Pacific populations.

Conclusion

The number of women diagnosed with breast cancer in Aotearoa New Zealand is projected to rise substantially over the coming decades, driven primarily by population growth and ageing rather than increases in incidence rates. Māori and Pacific women will continue to experience the highest incidence rates, while Asian women are projected to see the largest proportional increase in cases. The projected growth in cases is not evenly distributed across the country, highlighting the need for regional planning that reflects differences in population size, demographic composition and service capacity. These findings reinforce the need for equity-focussed approaches to breast cancer control.

At the same time, the projections highlight the importance of strengthening screening approaches to continue to focus on access and removing barriers to respond to both the growing number of cases and persistent inequities. Incorporating breast density reporting into BSA would provide an opportunity to improve detection for groups at higher risk of missed diagnoses, particularly Māori and Asian women in whom dense breast tissue is more common. Alongside this, international experience shows the potential value of AI screen reader tools and of personalised, risk-based screening strategies that tailor screening intervals and modalities to individual risk. A carefully designed transition towards equitable implementation of such approaches would enable earlier detection among high-risk groups, reduce avoidable inequities in stage at diagnosis, and ensure the health system makes effective use of its diagnostic and treatment resources as breast cancer numbers continue to grow.

COMPETING INTERESTS
MR is a board member of Hei Ahuru Mowai – Māori Cancer Specialists Group.

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