

BreastScreen Aotearoa Programme Monitoring Report

For Māori, Pacific and Total women screened
during the two or five years to June 2015

8 December 2016

Prepared for the National Screening Unit, Ministry of Health by
Bridget Robson, James Stanley
Te Rōpū Rangahau Hauora a Eru Pōmare
University of Otago Wellington

INTRODUCTION

This report summarises the performance of BreastScreen Aotearoa (BSA) based on quality indicators for women screened during the two- or five-year period to June 2015.

Breast cancer is the most commonly diagnosed cancer among women in Aotearoa New Zealand. Screening aims to detect cancers at an early stage when tumours are more amenable to treatment. A properly organised breast screening programme can significantly reduce illness and death from breast cancer¹.

BSA offers free two-yearly mammographic screening to women aged 45 to 69 years. It plays a vital role, firstly by finding breast cancer tumours at a very early and treatable stage; and secondly by systematic follow-up of women whose cancer is found by the screening programme to ensure timely pathways through the cancer care continuum. Women screened by BSA have a third lower risk of dying from breast cancer than women who are not screened².

BreastScreen Aotearoa has eight Lead Provider (LP) regions. Each LP is responsible for providing or subcontracting mammography screening and assessment services in their region. Independent Service Providers are contracted by the National Screening Unit (NSU) to support women from priority groups to screening and assessment. District Health Boards (DHBs) provide breast cancer treatment after diagnosis. Surgery is performed by DHB services and private providers; oncology and radiation therapy are provided by the six Cancer Centres (or by private providers in some areas). Data on the treatment provided to women whose breast cancer was detected by BSA is collected by each LP and reported to the NSU.

Māori and Pacific mortality rates from breast cancer are disproportionately higher than those of other women³ and more equitable outcomes could be achieved if more Māori and Pacific women were diagnosed at an earlier stage. For this reason, BSA prioritises screening these women, and those who are unscreened or under-screened. All quality indicators are monitored and reported by ethnicity.

Previous BSA monitoring reports, and a Background and Methods report can be found on the [NSU's website](#). Data reports containing tables and graphs of the various performance indicators are also available on request from the National Screening Unit. This report is the first to include data on Pacific women for all indicators.

This report summarises the results of BSA quality indicators related to coverage, screening quality and assessment, early detection, timeliness, and breast cancer treatment.

The report has four sections:

- Overall programme performance
- Lead Provider variability
- Equity issues
- Is BSA making a difference?

Recommendations from the BreastScreen Advisory group are appended to this report.

¹ National Screening Unit. 2003. *Strategic Plan 2003–2008*. Auckland: Ministry of Health.

² Ministry of Health. Summary of the BreastScreen Aotearoa Mortality evaluation 1999–2011. Wellington: Ministry of Health.

³ Ministry of Health. 2015. Cancer: New registrations and deaths 2012. Wellington: Ministry of Health.

OVERALL PROGRAMME PERFORMANCE

This section examines the performance of the BSA programme at the national level. Quality indicators by Lead Provider may differ from those of the overall programme. The report focuses mainly on the findings for women aged 50 to 69 years. Data for women aged 45 to 49 years are available in the Data Reports.

Coverage – on target for Pacific and total women but not for Māori

- BSA screened 65% of Māori women, 75% of Pacific women, and 73% of other women aged 50 to 69 years (target over 70%).
- Among women aged 45 to 49 years, BSA screened 63% of Māori, 72% of Pacific and 74% of other women.

BSA screened over half a million women during this two year period (505,936). The annual number of women screened by BSA has almost doubled over the last 10 years (from around 270,000 in 2006–07)⁴.

The coverage target of more than 70% for women aged 50–69 years was met for BSA overall, with 72% screened during the two year period July 2013 to June 2015.

National coverage was highest for Pacific women at 74%, but this was driven mainly by high coverage in the three northern LPs with higher proportions of Pacific women. In other LPs the coverage was lower and below target. Relatively small numbers of additional women were needed to achieve the target for Pacific women in these LPs (ranging from 1 to 8 per month across the 45–69 year age group).

Māori screening participation was below the target at 64%. Although there was a boost in Māori screening coverage during 2010 to 2012, there has been little movement during recent years. New impetus is required to achieve similar acceleration to reach the 70% target for Māori.

The higher background breast cancer incidence and mortality among Māori women underscores the high priority accorded to increasing screening participation of Māori women. As noted at the NSU's Screening Hui/Fono in Wellington in August 2016, it is essential to deliberately and methodically plan for and monitor equity within each Lead Provider region.

Timely rescreening – declining trends and widening disparities

- Timely rescreen targets are not being met for Māori or Pacific women.
- Timely rescreening after an initial screen is trending down for all women, but there are large gaps between Māori, Pacific and other women.
- Timely rescreening after a subsequent screen is below target for Māori (81%, target 85%) and for Pacific women (79%) but not for other women (88%).

Women who screen regularly have a lower risk of dying from breast cancer than those who screen less regularly⁵. If there is too long an interval between screens, new cancers have a longer

⁴ Page A, Arnett K, Taylor R. (no date). BreastScreen Aotearoa Independent Monitoring Report: Screening and Assessment Report of Women Attending BSA (women screen January 2006 to December 2007). School of Population Health, University of Queensland.

⁵ Ministry of Health. 2015. Summary of the BreastScreen Aotearoa Mortality Evaluation 1999 to 2011. Wellington: Ministry of Health.

time to develop beyond the early stages and screening is less effective at preventing illness and death. BSA aims to have 85% of women rescreened between 20 and 27 months of their previous screen.

During this two-year period no LP reached the target of 85% for Māori or Pacific women after an initial screen and only one (BreastScreen Coast to Coast) achieved the target for non-Māori non-Pacific women.

Māori and Pacific women had lower timely rescreening rates than other women, with gaps opening up in some regions. The additional numbers of Māori and Pacific women needed to reach the rescreening target were relatively small for each LP⁶, ranging from one to 32 per month for Māori women and less than one to 24 per month for Pacific women.

At the 2016 NSU Screening Hui/Fono providers presented strategies they are using to increase Māori and Pacific participation in screening, including rescreening. Ensuring all LPs and Screening Support Services have access to these success stories may be helpful.

Other potential issues for exploration could include:

- Are LPs able to access real-time reports on their timely rescreening rates?
- Are all eligible women being identified for invitation to rescreen by the software system? Are all rescreening invitations being sent out in time? Are there any issues with provider capacity or mobile unit scheduling?
- Are all LPs implementing evidence-based activities known to support timely rescreening? Are there core activities that all LPs could undertake, with additional activities tailored to the local context?
- The widening gap between Māori and non-Māori in timely rescreens after an initial screen indicates differences in systems or experiences of Māori and non-Māori within a LP's region. Are there access or acceptability barriers that may have been addressed in the initial screen but not in subsequent screens? Possible barriers or enablers could relate to hours of operation, screening unit location, mobile scheduling, ensuring women have good information about different screening locations and how to request changes for their screening appointment times or location and when to expect an invitation to return, pain or some other negative experience at the initial screen.
- More quantitative and qualitative information about and from women who are not rescreened within 20–27 months would support LPs to improve this quality indicator. Are there some women who never return? If not, why not? Are some screening a little later, or a lot later? What are the reasons?

Screening quality – generally on track

- Technical recall rates in mobile units have decreased and were on target overall but not in two LPs.

Since the move to digital technology in mobile units there has been a steep decline in the number of women recalled for technical reasons. Other than BreastScreen Auckland Ltd and BreastScreen Central, all LPs achieved the target levels.

There may be a decrease in the proportion of women having no more than four images since the introduction of digital technology. The proportions are slightly lower in mobile units than in fixed sites.

⁶ These numbers are calculated for the additional number of timely rescreens after initial and subsequent screens combined for women aged 50 to 69 years. For women aged 45 to 49 years, the number of additional women needed to reach 85% ranged from 2 to 20 per month for Māori women and 1 to 13 per month for Pacific women.

Only 1% or less of images were rejected (target <3%).

Timely reporting of screening results – a declining trend

- Most women received their screening results within 10 working days (on target at 90%) but there was a downward trend with two LPs below target.

Since 2013 there has been a slowing in the provision of screening results. Most LPs have maintained higher levels of timely reading, but two LPs (BreastScreen Midlands and BreastScreen South Ltd) are now below the 90–95% target, impacting the national rate. Reasons for this decline need investigating.

The decline appears to start at the time the move to digital technology was instigated. Reading digital images can take twice as long as reading films, especially for those who with less experience. Staff capacity to read mammograms within the time available may therefore be affected. Other than recruiting more staff time, screens could be pushed to other providers when capacity is stretched, as was envisaged with the move to digital technology.

Assessment – quality on track but timeliness below target and trending down

- Targets for assessment quality indicators were met for all women having a subsequent screen.
- There is some indication of over-referral for Māori women having an initial screen, with referral rates, false positive rates, and specificity outside the target ranges. However the proportion of women referred for assessment who had a cancer detected was within the target range for all groups of women.
- Timely offer of first assessment appointment was below target and trending down for all groups.

The proportion of women referred for further assessment after a subsequent screen remains steady and within the desired range of less than 5% for all women. All indicators were within the target range for subsequent screens. This indicates that BSA is performing well for women who are returning for routine rescreening (the majority of women screened).

For women having an initial screen the rates of referral to assessment and false positives were within the target range of less than 10% for the overall population but did not meet the target for Māori women. This varied by LP. However, the rate of cancers detected from an assessment (positive predictive value) was higher for Māori women. Around one in five Māori and Pacific women and one in six other women referred for an assessment had a cancer detected.

One of the identified harms from screening is the anxiety felt by women referred for assessment. To minimise the period of anxiety, BSA aims to have 90% of women offered their first assessment appointment within three weeks of their screen.

There is a declining trend in the proportions receiving timely offer of assessment. This was evident in most LPs apart from BreastScreen Waitemata and North which showed an increasing trend approaching the target value. BreastScreen Coast to Coast showed a significant disparity between Māori and non-Māori, indicating possible regional differences. System and capacity issues may need to be explored to support improvements in this indicator.

Biopsies – most diagnosed without open surgery, timeliness of results trending down, time to open biopsy needs attention

- Most women (around 95%) had a definitive diagnosis of breast cancer without open surgery and within 5 working days of their assessment.

- Some women required open surgery to get a definitive diagnosis and for a small proportion the biopsy was benign (not cancer). Of these women, around one in five had a benign biopsy heavier than 30g (target is one in 10).
- Just over half had their open biopsy within 20 working days (below 90% target).
- The proportion of women who received their final diagnostic biopsy results within 5 working days was 80% (target 90%) and trending down.

Around 95% of women diagnosed with breast cancer had a definitive diagnosis from a needle biopsy, meeting the target value for all groups of women. Most needle biopsies (95%) were received within 5 working days of assessment.

The benign open biopsy rate met the targets for initial and subsequent screens. Among the women who had an open biopsy that turned out to be benign, around four out of five had a biopsy weighing less than 30 grams. This was lower than the target value of 90%.

Only 55% of women who had an open biopsy had it within 20 working days of being notified that they needed it (target 90%). Two LPs (BreastScreen Auckland Ltd and BreastScreen South Ltd) did achieve the target, demonstrating that it is possible. If there is a lack of capacity, possible options include contracting out to other providers. If LPs do not think the target is appropriate it could be reassessed and benchmarked against other appropriate countries.

The proportion of women who received their final diagnostic biopsy results within five working days was below target (at around 80%) and trending down. The reasons for this trend need to be investigated so that any delay in treatment plans can be minimised for BSA women.

Early detection – on target for all indicators for Māori, Pacific and other women

- The programme is succeeding in its goal of early breast cancer detection.
- Māori women were more likely to have an invasive breast cancer detected than non-Māori women from initial and subsequent screens.
- Pacific women had a higher rate of invasive cancer detection from an initial screen than non-Māori non-Pacific women but the detection rate from a subsequent screen was similar.
- The targets for detection of invasive cancers that are small ($\leq 15\text{mm}$) or that have no nodal involvement were met for all groups.
- The proportion of cancers that were not invasive (DCIS) was also in the target range for all groups.

The invasive cancer detection rates were in the target range for initial and subsequent screens for each group of women.

Around half of cancers detected by BSA from initial screens were 15mm or less in diameter, as were two-thirds of those detected from subsequent screens. The rates of detection of small breast cancers per 10,000 screens were significantly higher for Māori than for non-Māori women for initial and subsequent screens.

The majority of invasive cancers detected by BSA had not spread beyond the breast to the lymph nodes, meeting the target values of 70% (initial) and 75% (subsequent) for each group of women.

The proportion of breast cancers that were DCIS was within the target range for all groups of women. Māori women aged 50–69 years had a lower proportion than non-Māori women (16% compared to 22%).

Treatment – time to surgery under target and not equitable, other targets were met, with no ethnic differences

- The proportion of women who had their first surgical treatment within 20 days of receiving their final diagnosis was below target in all regions. Māori and Pacific women were less likely than other women to receive timely surgery.
- The target was not met for the proportions of Pacific and non-Māori women who had radiation therapy with breast conserving surgery for invasive cancer.
- The targets were met for all other treatment indicators, with no differences between Māori, Pacific, and other women.

The proportion of women who had their first surgical treatment within 20 working days was below target for all ethnic groups and in each LP region. Māori and Pacific women were less likely than other women to receive timely surgery. The impact of the government's Faster Cancer Treatment target on the ability of BSA to achieve its target may need assessing.

The proportions of Pacific and non-Māori non-Pacific women who had radiation therapy with breast conserving surgery for invasive cancer were below the target value of 95% or more. Pacific women in the BreastScreen Auckland Ltd region had the lowest rate (63%).

All other treatment indicators met the target values.

There were no significant differences in the distribution of diagnostic groups between Māori, Pacific and other women and no major differences in the proportions receiving chemotherapy or endocrine therapy.

Women aged 45–49 years

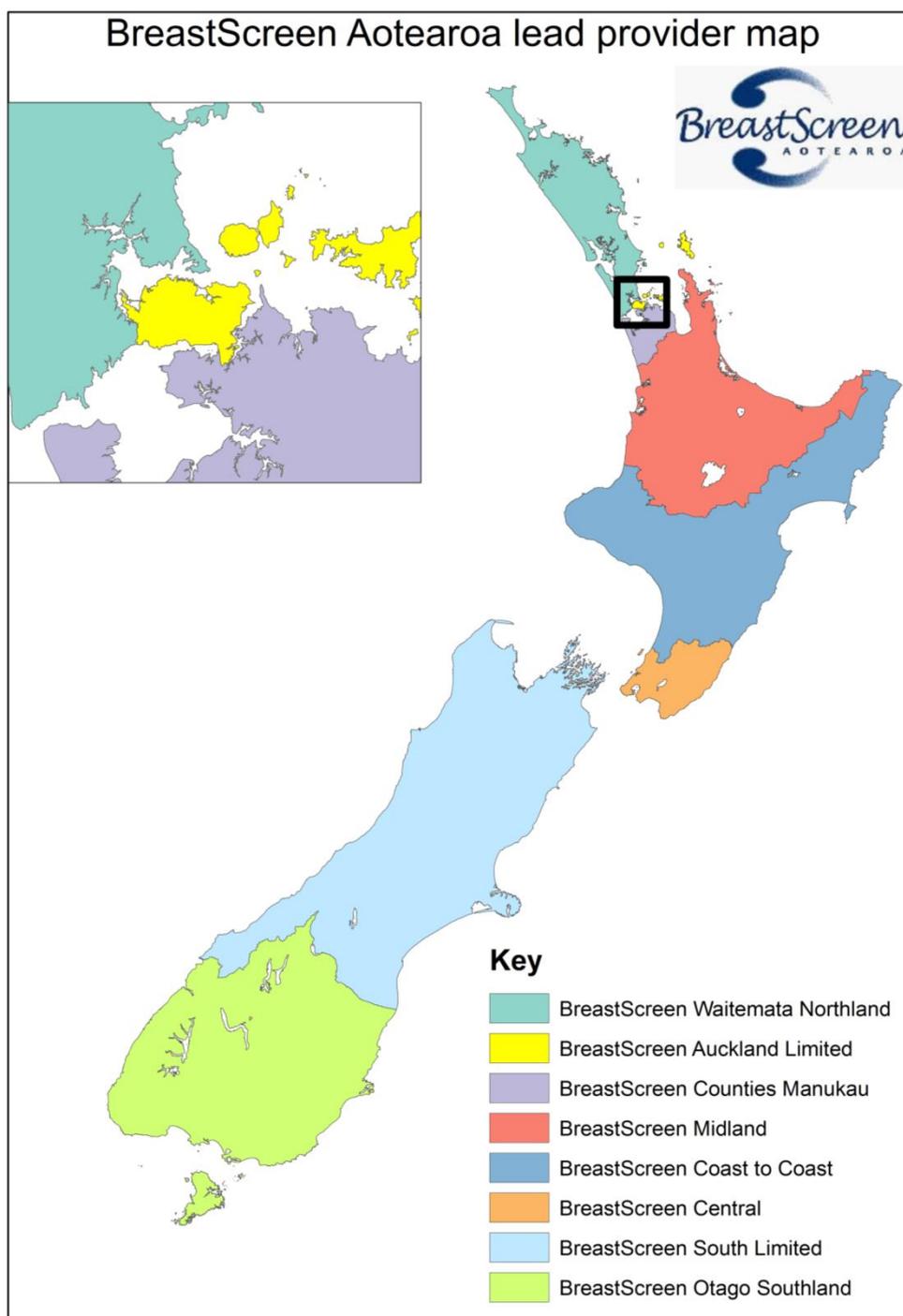
- The majority of invasive breast cancers detected by BSA among women aged 45–49 years were small and had not spread to the lymph nodes.
- The rate of cancers detected per 1000 screens was about half the rate for women aged 50–69 years.

BSA has provided screening to women aged 45–49 years since 2004. Other than coverage, quality targets have not been set for this age group. But how is the programme doing for the younger women? More than half of the invasive cancers detected among women aged 45–49 years were small (15mm or less in diameter) and around two-thirds had not spread to the lymph nodes. This indicates that the majority of women in this age group whose cancer was detected by BSA have a favourable prognosis. The main difference is that the rate of invasive cancers and small cancers detected per thousand women screened was lower – about half that for women aged 50–69 years who have a higher underlying risk of developing breast cancer.

Other indicators showed a significant difference between women in the two age groups during this period. Compared to women aged 50–69 years, women aged 45–49 years had a:

- Higher rate of timely rescreening after an initial screen
- Higher technical recall rate from mobile units
- Lower rate of referrals to assessment from initial screens
- Higher assessment rate, higher false positive rate for subsequent screens, and slightly lower specificity
- Lower positive predictive value for initial and subsequent screens – around half as likely to have a cancer detected from assessment
- Slightly higher benign open biopsy rate (significant for initial, not for subsequent screens)
- Higher receipt of chemotherapy among women in two diagnostic groups.

LEAD PROVIDER VARIATION



The eight BSA Lead Provider regions are shown in the figure above. BreastScreen Health Care was replaced with BreastScreen Otago Southland in August 2014. Some indicators in this report cover a five year period when BreastScreen Health Care was still operating.

Coverage and rescreening – LPs varied in coverage, timely rescreening, and equity

- Two LPs exceeded or achieved the 70% coverage target for Māori women aged 50–69 years

(BreastScreen South Ltd and BreastScreen Counties Manukau).

- Pacific coverage was higher than for other women and above the target in three LPs with high Pacific populations (BreastScreen Waitemata and North, BreastScreen Counties Manukau, BreastScreen Auckland Ltd). In other LPs, Pacific coverage was lower for Pacific than for non-Māori non-Pacific women.
- For total women, five LPs achieved the target coverage, and three (BreastScreen Waitemata and North, BreastScreen Auckland Ltd, BreastScreen Midlands) were less than two percentage points away from the target.
- No LP met the target of 85% rescreened within 27 months of an initial screen. Rates were highest in BreastScreen Coast to Coast and lowest in BreastScreen Midlands. Gaps between Māori and non-Māori may be widening in three LPs (BreastScreen Counties Manukau, BreastScreen Coast to Coast, BreastScreen Central) and narrowing in BreastScreen Midlands.
- The target for timely rescreening after a subsequent screen was met for Māori and Pacific women by half the LPs (BreastScreen Auckland Ltd, BreastScreen Coast to Coast, BreastScreen South Ltd, BreastScreen Otago Southland) but rates were lower than for other women in all LPs apart from BreastScreen Midlands.

BreastScreen South Ltd achieved the highest 2-year coverage for Māori women, exceeding the target of 70% for women aged 50–69 (76%) and those aged 45–49 years (79%). BreastScreen Counties Manukau was the only other LP to achieve the target for Māori women aged 50–69 years (69%). BreastScreen Midlands, which has the highest number of eligible Māori women, is showing a shallow increasing trend and achieved a participation rate of 60%. Other LPs achieved screening participation rates of between 62% and 66% for Māori women aged 50–69 years and between 59% and 64% for women aged 45–49 years. The additional numbers needed to achieve the target for Māori women aged 45–69 years by individual LPs ranged from 6 to 88 per month.

The target was achieved for Pacific women by the three LPs with the highest numbers of eligible Pacific women (BreastScreen Waitemata and North, BreastScreen Counties Manukau, and BreastScreen Auckland Ltd). Coverage in these LPs was higher for Pacific women than for Māori or non-Māori non-Pacific women. In other LPs, Pacific participation was below the target and significantly lower than non-Māori non-Pacific participation.

For total women aged 50–69 years, five of the eight LPs achieved the target coverage, with the other three less than one or two percentage points below. Coverage was highest in BreastScreen South Ltd (79%) and lowest in BreastScreen Auckland Ltd (68%).

For total women aged 45–49 years, four LPs had over 70% coverage, highest in BreastScreen South Ltd at 85%. The lowest coverage in this age group was 67% (BreastScreen Midlands).

Timely rescreening

The proportion of women rescreened within 27 months of their previous screen varied significantly between LPs but was consistently lower for women whose previous screen was their first with BSA. No LP achieved the target of 85% after an initial screen but six LPs achieved 85% or more for women whose previous screen was a subsequent screen.

BreastScreen Coast to Coast achieved the highest proportions having a timely rescreen after an initial screen for Māori (70%), Pacific (73%), and non-Māori non-Pacific women (86%). The proportion rescreened within 27 months of an initial screen may be trending down for several LPs. For some the gaps between Māori and non-Māori are widening (BreastScreen Coast to Coast, BreastScreen Central, BreastScreen Otago Southland, BreastScreen Counties Manukau) while the gap is closing in BreastScreen Midlands.

Targets for timely rescreens after a subsequent screen were met for Māori and Pacific women by BreastScreen Auckland Ltd, BreastScreen Coast to Coast, BreastScreen South Ltd, and BreastScreen Otago Southland. Targets were met for non-Māori non-Pacific women by these LPs and also by BreastScreen Counties Manukau and BreastScreen Central. Only two LPs did not meet the target for total women (BreastScreen Waitemata and North BreastScreen Midlands).

Screening quality – few differences between LPs

- All LPs met the screening quality targets in fixed sites, with no variation between LPs.
- For mobile units, technical recall rates have declined significantly amongst all. BreastScreen Auckland Ltd and BreastScreen Central were outside the target range.

Technical recall rates in fixed units were within the target range with no variation between LPs. In mobile units, technical recall rates have declined significantly among all LPs showing the benefit of being able to review digital images on-site. BreastScreen Auckland Ltd and BreastScreen Central remained outside the target range of less than 0.5% in this monitoring period. Since blur is the most common reason for technical recall, BSA could consider assessing the viewing conditions in the mobile units in these LPs, noting that the shift to digital imaging was not completed during the first months of this time period.

There was no variation in the proportion of rejected images. All were within the target range.

Assessment – some variability in initial screens but not subsequent screens

- All LPs met the target values for referrals to assessment, false positives, specificity and positive predictive value for subsequent screens.
- For initial screens, some LPs were outside the target ranges for rates of referral to assessment and false positives. But most had high positive predictive values (within the target range).

For Māori, Pacific, and other women having subsequent screens, the rates of referral to assessment, false positives, specificity, and positive predictive values were within the target ranges in each LP.

There was some variability between LPs for women having their first screen with BSA.

Among women having an initial screen with BreastScreen Waitemata and North, rates of referral to assessment, false positives, and specificity were outside the expected value but the target value for the positive predictive value was within the confidence interval. There was a similar pattern for BreastScreen Midlands but the positive predictive value was well within the target range.

Among Māori women screened by BreastScreen Otago Southland, the rates of referral to assessment, specificity and false positives for initial screens were outside the expected values, as was the positive predictive value (with no cancers detected from assessments).

BreastScreen South Ltd had a false positive rate outside the target for initial screens but the target value for the positive predictive value was within the confidence interval.

Biopsies – some variation in the proportion of benign open biopsies weighing less than 30g

Over 90% of women had a preoperative diagnosis of breast cancer in each LP.

The benign open biopsy rate was within the target range for all LPs for subsequent screens. BreastScreen South Ltd was outside the target for initial screens.

The proportion of benign open biopsies that weighed less than 30g was outside the target range of over 90% for three LPs (BreastScreen Midlands, BreastScreen Coast to Coast and BreastScreen South Ltd).

Early detection – no significant variability between LPs

- There was little variation between LPs in rates of invasive breast cancer detection from subsequent screens and no significant variation in detection rates from initial screens.
- All LPs achieved at or above target levels for detection of small breast cancers and cancers without nodal involvement.
- The proportions of breast cancers detected that were DCIS were within the target range for all LPs.

For all LPs the indicators for detection of invasive breast cancer, tumours 15mm or smaller, and cancers without nodal involvement were on target or the target was within the 95% confidence interval for initial and subsequent screens.

There was little variation between LPs in detection rates from subsequent screens. For initial screens there was some variation but no significant differences from the national levels.

The proportions of breast cancers that were DCIS were within the target range for each LP.

Timeliness - variation evident in each indicator

- Two LPs showed a declining trend (BreastScreen Midlands and BreastScreen South Ltd) in timely receipt of screening results.
- Most LPs showed a declining trend in the proportion receiving a timely offer of their first assessment appointment, with BSOS lowest at 27%. The exception was BreastScreen Waitemata and North which showed an increasing trend, almost achieving the target (88% with a target of 90%).
- Most LPs achieved the target value (90%) for the timely receipt of needle biopsy, but BreastScreen Auckland Ltd showed a declining trend to 81%.
- Although relatively few women required an open biopsy, half of the LPs did not achieve the target for the proportion receiving their biopsy within 20 working days (BreastScreen Waitemata and North, BreastScreen Midlands, BreastScreen Coast to Coast, and BreastScreen Central).
- BreastScreen South Ltd was the only LP to achieve the target value for the percentage of women receiving their final diagnostic biopsy results within five working days. BreastScreen Auckland Ltd showed a decreasing trend (56%) while BreastScreen Otago Southland was trending up (69%).

Treatment – some variation in two indicators

- All LPs were below target for the proportion of women receiving their first treatment surgery within 20 working days. BreastScreen Counties Manukau was significantly lower than other LPs (27%).
- The proportion of women with invasive cancer who had breast conserving surgery and radiotherapy was below target for BreastScreen Auckland Ltd.
- All LPs met the targets for other treatment indicators and there were no significant differences between LPs, including for adjuvant therapies.

EQUITY ISSUES

BSA has a priority goal of providing equitable screening and achieving equitable outcomes for Māori, Pacific, and other populations in Aotearoa. Equity is a fundamental component of a high quality service. Systematic monitoring by ethnicity is a critical part of quality assurance and quality improvement.

Māori women

Māori women have higher underlying breast cancer incidence and mortality rates than other women. If more Māori women have their breast cancer detected early the disparity in breast cancer mortality can be reduced. The higher incidence also means that more cancers will be detected per 1,000 Māori women screened than will be detected among 1,000 other women (i.e. screening is more cost effective).

There were no differences in the proportions of cancers that were small or that had not spread to the lymph nodes, and the rate of small cancers detected per 10,000 screens was higher for Māori than for non-Māori in this reporting period. Thus BSA is most certainly making a difference to breast cancer outcomes for Māori. The lower coverage and lower rate of timely rescreens among Māori are the two key factors preventing BSA from achieving greater reductions in breast cancer mortality and morbidity among the Māori population.

A stronger commitment to prioritising Māori women is required to firstly achieve and maintain the target levels of coverage and timely rescreens, and then to achieve equitable rates (since non-Māori are above target in many LPs).

Māori women are also waiting longer for their first surgical treatment than non-Māori non-Pacific women. It may be useful to examine whether regional differences in wait times are contributing to longer waiting times for Māori.

All other treatment indicators were similar for Māori and non-Māori.

Pacific women

Pacific women have a higher incidence and mortality rate than non-Māori non-Pacific women. The BSA Mortality Evaluation found that participating in the screening programme had a significant impact on Pacific women's risk of dying from breast cancer. Thus BSA is a critical component in breast cancer control for Pacific women in Aotearoa.

Close to three-quarters of Pacific women in the screening age group reside in three LP regions: BreastScreen Waitemata and North, BreastScreen Auckland Ltd, and BreastScreen Counties Manukau. The national rates therefore reflect the performance of these LPs. Coverage is higher for Pacific women in these LPs than for Māori or other women, as is the national coverage rate.

However, Pacific coverage in other LPs is lower than target and lower than non-Māori non-Pacific coverage, despite the smaller numbers of women to be screened. For these LPs, only small numbers of additional Pacific women per month were required to achieve the target of 70% (ranging from 1 in BreastScreen Otago Southland to 7 in BreastScreen Midlands and 8 in BreastScreen Central).

Although coverage was higher overall for Pacific women, timely rescreening rates were lower than for non-Māori non-Pacific women after both initial and subsequent screens. Late rescreening could be a factor contributing to the lower proportion of small invasive cancers detected from subsequent screens among Pacific compared to non-Māori non-Pacific women.

Pacific women were less likely to receive their first treatment surgery within 20 working days than non-Māori non-Pacific women, and less likely to receive radiotherapy after breast conserving surgery for invasive cancer. No other treatment indicators showed a difference between Pacific and other women.

Equity Tools

The Ministry of Health has a variety of tools designed to assist equity development, including the [Whanau Ora tool](#); the [Health Equity Assessment Tool](#); the [Equity of Health Care](#) for Māori framework. Leadership, commitment and knowledge have been found to be key components of achieving equitable health service provision. These are necessary at the health professional level, organisation level, and system level⁷.

The 2016 NSU Screening Hui/Fono showcased examples of successful strategies being employed by LPs to create equitable screening for Māori and Pacific women.

Other resources from overseas include the [Roadmap to Reduce Disparities](#); the [Equity of Care Toolkit](#); the Institute for Healthcare Improvement (IHI)'s [Achieving Health Equity: A Guide for Health Care Organizations](#); and a [Health Equity Tools Inventory](#).

The “Roadmap” research identified six steps for successfully reducing disparities in health care include linking quality and equity; creating a culture of equity; diagnosing the disparity, designing the activity; securing buy in; and implementing the change (including measuring changes and adapting the activity where necessary).

The IHI guide includes five key components: make health equity a strategic priority; develop structure and processes to support health equity work; deploy specific strategies to address determinants of health where the organisation can have direct impact; decrease institutional racism within the organisation; develop partnerships with community organisations to improve health and equity.

IS BSA MAKING A DIFFERENCE?

- BSA is meeting its goals for early detection of breast cancers among screened women.
- More than half of the invasive breast cancers detected by BSA were detected while they were still small and three-quarters had not spread outside of the breast. These cancers have a better prognosis and reduced morbidity from treatment.
- Māori women were more likely than non-Māori to have a small breast cancer detected. Increasing the coverage and timely rescreening of Māori women will help achieve its goal of equitable breast cancer mortality outcomes for Māori women in Aotearoa.
- The programme aims to minimise harm by keeping false positive rates and open biopsy rates as low as possible. These were within the target range for this period.
- Four out of five women had breast conserving surgery, with the majority (90%) also having radiotherapy. Chemotherapy and hormone therapy rates were similar for all ethnic groups.
- Trends in some timeliness indicators show signs of a system under stress. Reducing wait times for screening results, first assessments, open biopsies, first surgical treatment could reduce unnecessary anxiety among screened women.

⁷ Cram F. 2014. Improving Māori Access to Health Care: Research Report. Auckland: Katoa Ltd.

- Declines in timely rescreening rates need to be addressed since they may affect future rates of small cancer detection and interval cancer rates.

Maximising benefits

Detecting cancers while they are small and before they have spread to the lymph nodes (armpit) means that the treatment can be breast conserving and cause less long-term illness and disability since fewer lymph nodes need removing reducing the chance of swelling in the arm. The risk of dying from breast cancer is also reduced.

Among invasive cancers detected by BSA, two-thirds detected from a first BSA screen and three-quarters detected from a subsequent screen had not spread to the lymph nodes. This level is being maintained over time. There were no significant differences between Māori, Pacific and other women in these proportions.

Half of the cancers detected from initial screens were small (15mm or less in diameter) as were nearly two-thirds of those detected from subsequent screens (slightly lower among Pacific women). Most women were treated with breast conserving surgery and only underwent a single surgical procedure.

These indicators show BSA is making a positive difference to breast cancer mortality and morbidity in Aotearoa.

Minimising harms

High quality screening programmes aim to minimise any harms from screening, since well women are invited to participate in an intervention. Possible harms might include unnecessary surgery, or increased anxiety while waiting for an assessment or biopsy results.

BSA is achieving most targets relevant to harm minimisation, including low numbers of women recalled for technical reasons; low false positive rates for subsequent screens (although not quite achieving the target for initial screens for Māori); nearly all women have a definitive diagnosis without undergoing open surgery; the benign biopsy rate was on target; as was the timely receipt of needle biopsy.

Some emerging trends in timeliness are of concern, since they may heighten anxiety levels for some women. For example there is an increasing proportion of women waiting longer for their first assessment appointment; declining trends in timely receipt of screening results in some LPs; declining trends in timely receipt of final diagnostic biopsy results; and continuing low proportions receiving timely open biopsies and first treatment surgery.

The decreasing trend in timely rescreening is also of concern since the effectiveness of mammography screening depends on regular screening within the recommended screening interval.

In summary BSA is providing a high quality screening service to women in Aotearoa, and is contributing to reduced illness and deaths from breast cancer. Most potential harms are being minimised. Improvements in timeliness indicators, coverage of Māori women, and timely rescreening, will help to enhance the programme's effectiveness and contribution to equitable outcomes from breast cancer for women in Aotearoa.

APPENDIX 1: RECOMMENDATIONS FROM THE BSA ADVISORY GROUP

1. The NSU carry out a systematic investigation of re-screening intervals to establish whether women are disengaging with the screening programme completely, or whether this is a timeliness issue.
2. The NSU to investigate whether it is feasible to have specific targets for Māori women.
3. The NSU to investigate capacity of the programme and whether this was influencing
 - the delay in notifying women of their screening results within 10 working days
 - the decline in the percentage of women referred for assessment receiving final diagnostic biopsy results within 5 working days.
 - the downward trend of a timely offer of first assessment appointment and exactly what is recorded by each provider identified (date of telephone call versus date of possible appointment).
4. The NSU should notify providers that it is a requirement that benign biopsy specimens must be weighed.
5. The NSU investigate what is monitored internationally about women receiving radiotherapy and chemotherapy, and whether targets exist.

APPENDIX TWO: RECOMMENDATIONS FROM THE MĀORI MONITORING AND EQUITY GROUP

- Providers are recommended to audit at a systems level for “late attenders”, and to check that all process are followed.
- Consider systematically surveying women who don’t re-attend breast screening.
- MMEG is concerned about the impact of population changes on screening services capacity and potential impacts on equity. NSU is to share eligible screening population projections with MMEG.
- MMEG supports the development of quality indicator targets for women aged 45–49 years given the impact of breast cancer among Māori women in this age group.
- MMEG notes the importance of screening providers liaising closely with services providing support to screening.