BreastScreen Aotearoa

Independent Māori Monitoring Report
January 2006 to December 2007
50-64 years

A report prepared by
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This document will be available on the National Screening Unit website: http://www.nsu.govt.nz

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OVERVIEW AND RECOMMENDATIONS

Breast cancer is the most common cancer diagnosed among Māori and non-Māori women in New Zealand. Māori mortality rates from breast cancer are disproportionately higher than non-Māori rates and more equitable outcomes could be achieved if more Māori women were diagnosed at an earlier stage. Screening aims to detect cancers at an early stage when tumours are more amenable to treatment and a properly organised breast screening programme can significantly reduce mortality from the disease. BreastScreen Aotearoa (BSA) offers free two-yearly mammographic screening to women aged 45 to 69 years and plays a crucial part in reducing breast cancer mortality.

Using the standard indicators and targets developed by the National Screening Unit (NSU), this report presents the results for Māori and non-Māori women aged 50 to 64 years screened by BSA and the Māori/non-Māori ratios for each indicator as a measure of equality or inequality. Data on coverage, screening and assessment quality, and timeliness are presented for the two-year period January 2006 to December 2007, while data on detection rates and treatment are presented for the seven-year period January 2001 to December 2007 due to the smaller numbers involved.

This report is the first of a new time series of independent Māori monitoring reports commissioned to measure the quality of BSA services for Māori women. An initial report was published in 2008, but due to changes in the method for calculation of rates, comparisons between the two reports cannot be made for most indicators. For this reason, the current report is considered the first in the ongoing monitoring series, and it is intended that time trends will be examined in future reports.

Screening coverage of Māori women was negatively affected by the age extension of BSA in 2004 but appears to be increasing again. Nevertheless, in the period 2006-07 only 45% of eligible Māori women were screened, compared to 65% of non-Māori women. More recent data from the Independent Monitoring Report 2010[1] shows that there has been a considerable improvement in coverage overall, and in coverage of Māori women since the time period of this current Māori monitoring report. Continuing to increase and maintain high coverage of Māori women remains a high priority however.

During 2006-07, in addition to having lower rates of initial screens, Māori women were less likely to receive timely subsequent screens (within 27 months). This affects overall coverage, but more importantly, delayed detection potentially contributes to larger tumour sizes and more advanced cancers.

Among those referred for assessment after mammography, Māori women had a higher chance of cancer being detected than non-Māori women (i.e., a higher positive predictive value). This indicates that BSA is potentially more cost effective for Māori women. However, Māori women were less likely to be diagnosed with small tumours and more likely to wait longer for first surgery. This is of significant concern given the urgency of treatment for larger tumours. Further investigation of the reasons for later first surgical treatment would be useful to contribute to greater effectiveness of the screening programme in reducing mortality.

Although the majority of women were screened in fixed units, a higher proportion of Māori women were screened in a mobile unit (30%) compared to non-Māori women (17%). Among those screened in mobile units, a greater proportion of Māori women were required to return for further

[1] Page et al. (2010). BreastScreen Aotearoa Independent Monitoring Report: Screening and Assessment Report of Women attending BSA (Women screened July 2007–June 2009) reported 52% coverage of Māori women aged 50-69 years during July 2007–June 2009.

mammograms for technical reasons (4.7% compared to 3.4% of non-Māori women), and a higher proportion needed 4 or more films per screen (27% compared to 11%).

The timeliness indicators each have targets set at 90%, and showed mixed results. The targets were met for Māori women for receipt of screening results, but not for assessment appointments with only 75% offered an appointment within 15 working days (79% for non-Māori). Once assessed, over 90% of Māori women received their needle biopsy within 5 days, but only 52% received their open biopsy procedure within 15 working days (compared to 69% of non-Māori women). Eighty-three percent of Māori women received the results of their final diagnostic biopsy within five working days, (86% for non-Māori) but only 57% received their first surgical treatment within 20 working days (compared to 71% of non-Māori women).

Recommendations

These recommendations were made in consultation with the Māori Advisory Group of the NSU.

Coverage

- While there has been progress in coverage for Māori women, there needs to be a continued strong focus on improving coverage by Lead Providers. There also needs to be a continued focus on increasing Māori rescreening rates.

- The Māori Advisory Group notes the importance of health promoters for achieving improved coverage for Māori women. Lead Providers should be encouraged to increase and strengthen collaboration and coordination with Independent Service Providers (ISPs). Opportunities should be provided for Lead Providers and ISPs to share successful strategies both within and between regions.

- The Māori Advisory Group recommends that patient satisfaction surveys are administered by the NSU and conducted at a national level across Lead Providers. Because the coverage and rescreening rates are likely to reflect both accessibility and acceptability of services, it is recommended that ethnicity data is collected on surveys using the standardised ethnicity question and results for Māori are reported.

Mobile Units

- A higher proportion of Māori women screened access mobile screening units (30%) compared to non-Māori women (17%). The siting of mobile units therefore has a greater impact on Māori access to screening and rescreening. The siting of mobile units should be carefully planned and located according to the density of the Māori population, rather than the density of the total population. Additionally, the higher rate of technical recalls and multiple films taken for Māori in mobile units need to be investigated to ensure that Māori women attending mobile units are receiving the same quality of service as non-Māori.

- Māori communities would benefit from receiving information from Lead Providers ahead of time about where and when mobile units will be available. Prior consultation with Māori communities about where best to locate units is recommended.

- The Māori Advisory Group recommends that BSA continue to provide clear information to Māori communities about the technical requirements for mobile unit location (e.g., water, 3-phase power) and re-screening requirements. NSU and Lead Providers could consider providing financial and other support to enable marae to become technical sites for mobile units.

- It is recommended that women screened at mobile units are advised of other options for screening (such as attending a fixed unit) in order to avoid the chance of a missed opportunity of screening if a woman is unable to attend during the time the mobile unit is located in her area. Providers are required to follow up and offer screening for women who miss the mobile unit.

Rescreening

- It is recommended that NSU considers refining the current indicator on re-screening or developing another indicator to analyse whether Māori women are being re-screened later than non-Māori. Data could be analysed by time from the previous screen. The target for re-screening within 20-24 months needs to be reconsidered. There is no incentive for LPs to re-screen earlier than 24 months as these women are not counted twice in a two-year period. The target for re-screens within 27 months is more appropriate.

- The reasons for late rescreening of Māori women need to be investigated. If late rescreening is due to women changing to a more accessible service, providers need to ensure that this occurs within the 27 month screening timeframe.

- To optimise the effectiveness of health promotion and to enable women who missed out on screening during one year to attend the following year instead of having to wait for two years, LPs and NSU could consider annual rather than biennial mobile site rotations.

Quality

- The rates of multiple films and technical recall are higher for Māori women. The reasons for the higher rates for these two indicators, particularly for mobile units, require investigation.

- The Māori Advisory Group recommends that the reasons for the higher rate of false positive screens for Māori women are explored.

Detection

- The higher cancer detection rate among Māori women in subsequent screens needs further investigation.

- NSU should assess the appropriateness of the detection targets for Māori women. The cancer detection rate is based on the background cancer rate, which is largely influenced by non-Māori cancer incidence. Māori cancer incidence is expected to be higher, therefore the detection targets may not be appropriate for Māori.

Treatment

- There has been some indication of improvement in treatment, with recent data showing the target for the proportions of women who had surgery for DCIS without axillary dissection now met for both Māori and non-Māori. District Health Boards are encouraged to continue ensuring Māori are receiving best practice.

Timeliness

- District Health Boards should be notified of the need to improve the timeliness of open biopsies and first surgical treatments for Māori women.

- Lead Providers need to be aware of the need to improve timeliness in offer of first assessments for Māori women.

- Investigation into the reasons for Māori women receiving less timely treatment is recommended.

Data collection

- The Māori Advisory Group recommends that ethnicity data accuracy is regularly audited, and plans for improvement put in place where necessary. Collaboration with the wider Ministry of Health is recommended in order to include mandatory ethnicity data collection training for data collectors in contracts and audits.

- Lead Providers should be encouraged to audit their own ethnicity data collections (screening and other) and report to their DHBs.

- It is also recommended that NSU explore the development of a nationally consistent patient brochure on ethnicity data.

General

- It is recommended that NSU feeds back Māori monitoring data to DHBs on all indicators, including treatment, as part of a quality improvement process. The Māori Advisory Group recommends that a condensed version of key points from the IMMR are sent to DHBs and also published in *Screening Matters*.

- Consideration should be given on how contracting and funding arrangements between NSU and providers could support the reduction of inequities in breast screening and be aligned with the whānau ora direction of the government.

- It is recommended that the NSU collect data on women who choose not to participate in screening in order to investigate factors that may contribute to women deciding not to take part in screening.

- The Māori Advisory Group recommends that the proportion of screens that are initial and subsequent and the percentage of women screened by type of screening unit are analysed by age group so that screening patterns in different age groups can be examined.

INDIVIDUAL LEAD PROVIDER PROFILES

Introduction

The intention of this section is to provide a clear overview for each Lead Provider of how well they are achieving the targets for Māori women, and which indicators require continued focus.
The section provides a summary for each Lead Provider of their indicators against the targets, for Māori women screened in their region, aged 50 to 64 years. Data for most indicators is for the two year time period 1 January 2006 to 31 December 2007, however some detection data is provided for the 7 year period 1 January 2001 to 31 December 2007 in order to maximise numbers and increase statistical precision. Indicators which cover the 7 year time period are:

- 3b.1 The proportion of invasive cancers less than or equal to 10mm
- 3c.1 The proportion of invasive cancers less than 15mm
- 3d The proportion of invasive cancers with no nodal involvement
- 3e The proportion of DCIS as a percentage of all screen detected cancers

The data presented in the graphs demonstrates whether the target for each indicator was achieved for Māori women, and the percent distance of each indicator from the target.[2] The central line of the graph represents the target and all indicators with bars to the right of this line achieved the target, those to the left did not achieved the target, although for many the target lies within the confidence interval.

Rescreening data is not available separately for the three northern Lead Providers: BSWN, BSCM and BSAL. Women eligible for rescreening during the time period of this report were initially screened under BreastScreen Auckland and North (BSAN) before its separation into the current three northern providers in 2005/06. Therefore data for rescreening is provided only for BSAN and can be found in Section 1, Tables 1b.1 and 1b.2 of this report.

Treatment indicators have not been displayed in these graphs, but treatment data are included in Section 4 of the report.

It should be noted that this report presents baseline data for the Māori monitoring series and does not show recent improvements. The next Independent Māori Monitoring Report will cover the period 1 January 2008 to 31 December 2009 and enable Providers to measure progress against the indicators for Māori women in this report.

[2] DCIS results (3e) have been interpreted as below target if the proportion of screen-detected cancers diagnosed as DCIS lies outside the target range of 10% to 25%.

All BreastScreen Aotearoa

BreastScreen Aotearoa as a whole reached or exceeded the targets for Māori women aged 50 to 64 years for over half the indicators.

On or above target
For subsequent screens, the indicators were either on target or exceeded the targets for referrals to assessment, false positive rate, benign biopsy rate, specificity, positive predictive value, invasive cancer detection rate, and the proportion of invasive tumours ≤ 10mm.

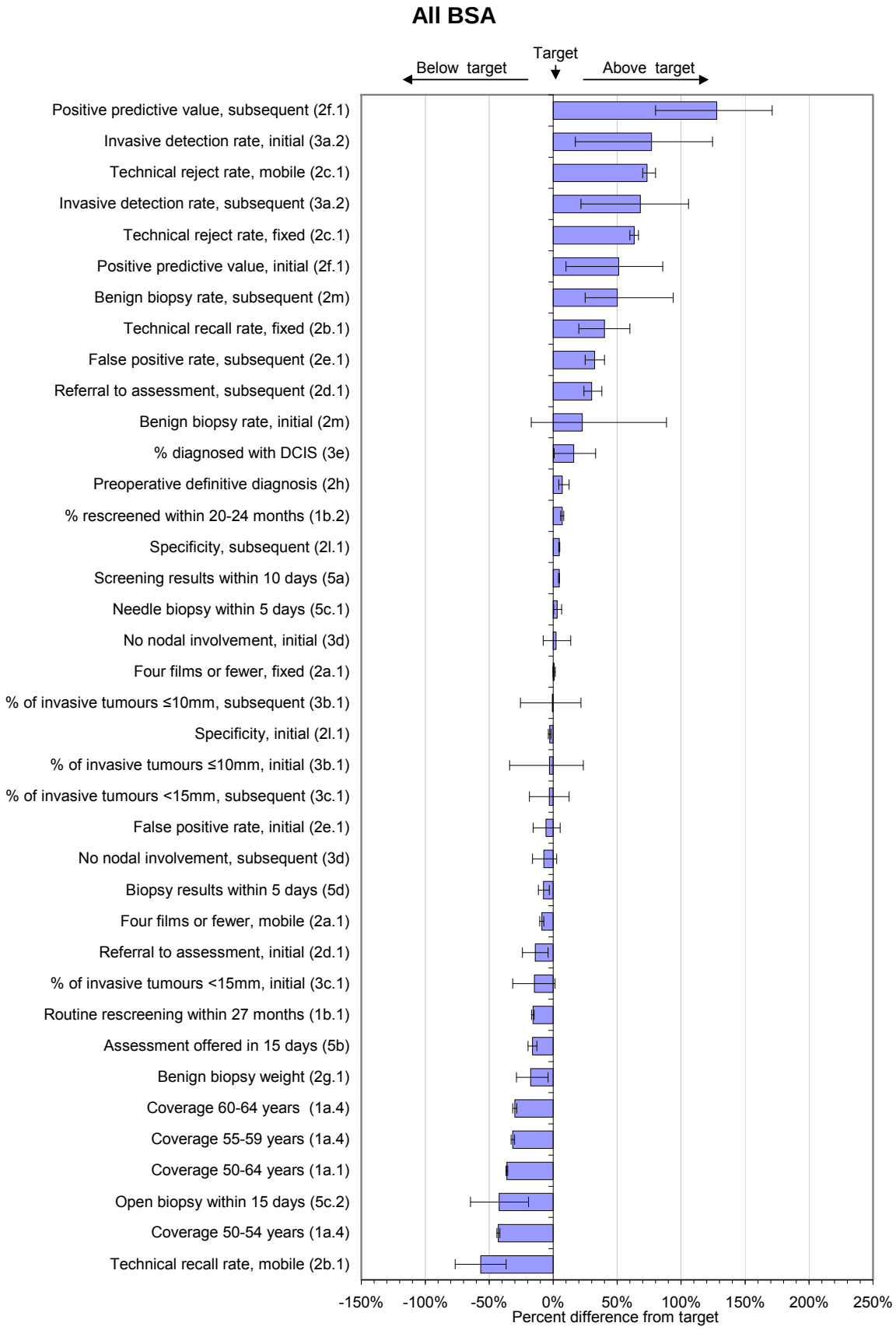
For initial screens, BSA reached or exceeded the targets for the invasive detection rate, the positive predictive value, the benign biopsy rate, and the proportion of invasive cancers with no nodal involvement.

Other indicators which met or exceeded the targets included the technical reject rates for mobile and fixed units, the technical recall rate for Māori women screened in fixed units, the proportion with a preoperative definitive diagnosis, the proportion diagnosed with DCIS, the proportion who received their needle biopsy within 5 days, the proportion who were notified of their screening results within 10 days, and the proportion of Māori women screened in fixed units who required four films or fewer.

Indicators below target but for which the target lay within the 95% confidence interval included the proportion of invasive tumours detected from initial screens that were ≤10mm or <15mm, the percentage of tumours detected from subsequent screens that were less than 15mm or with no nodal involvement, the false positive rate for initial screens.

Below target
Indicators that were statistically significantly below target included: coverage in each age group (44.7% for women aged 50 to 64 years, target value 70%, lower for Māori women aged 50-54 years at 40%); the proportion routinely rescreened within 27 months (71.5%, target value 85%); the proportion of Māori women screened in mobile units requiring four films or fewer (72.9%, target value >80%) or recalled for technical reasons (4.7%, target value <3%); the specificity of initial screens (90.4%, target value >93%), the proportion of Māori women having initial screens referred to assessment (11.4%, target value <10%); the proportion offered assessment within 15 days of screening (75.4%, target value 90%); the percentage having their open biopsy within 15 days of assessment (52%, target value 90%) and receiving their biopsy results within 5 days (83.1%, target value 90%), the proportion of benign biopsies weighing 30 g or less (74.2%, target value >90%), and the proportion receiving their first surgical treatment within 20 days of receiving their final diagnostic results (57.3%, target value 90%) (last indicator not shown on graph).

Figure i: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, all BSA



BreastScreen Waitemata and North

BreastScreen Waitemata and North (BSWN) reached or exceeded targets for Māori women aged 50 to 64 years for more than half the indicators.[3]

On or above target

For subsequent screens, the indicators were either on target or exceeded the targets for the rate of referrals to assessment, the false positive rate, the benign biopsy rate, specificity, the positive predictive value, the invasive cancer detection rate, and the proportion of invasive tumours ≤10mm.

For initial screens, BSWN reached or exceeded the targets for the proportion of invasive tumours ≤ 10mm and < 15mm, the proportion without nodal involvement, the positive predictive value, the invasive detection rate, and the benign biopsy rate.

Also on or exceeding the targets were the technical reject rates in both fixed and mobile units, the technical recall rate in fixed units, the proportion with a preoperative definitive diagnosis, the proportion of Māori women having a needle biopsy within five days of assessment, and screening results within 10 days.

Indicators below target but for which the target lay within the 95% confidence interval included: the proportions of invasive cancers detected in subsequent screens less than 15 mm and the proportion without nodal involvement, the rate of referrals to assessment from initial screens, the percentage of benign biopsies weighing less than 30g, and the proportion of cancers that were diagnosed as DCIS.

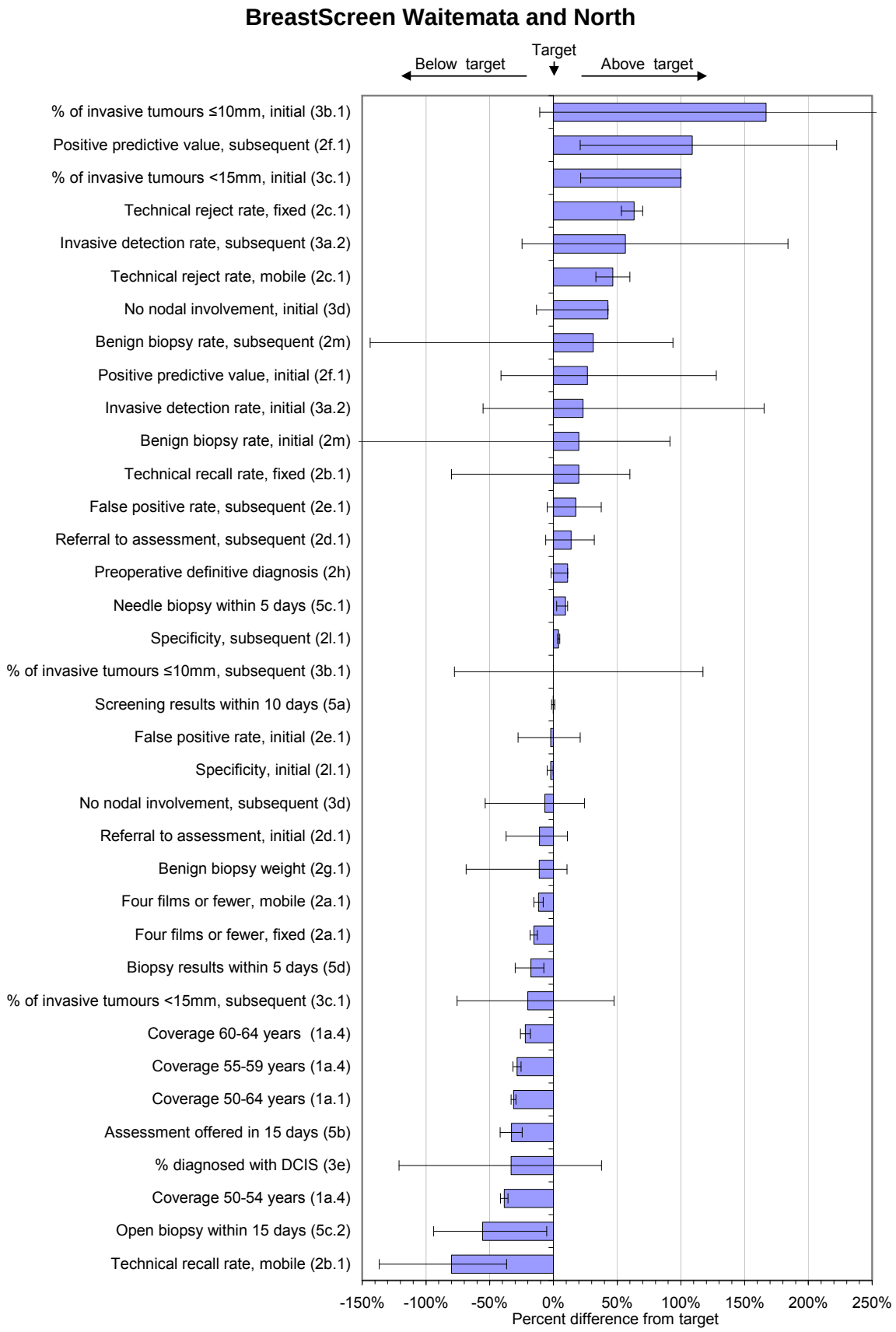
Below target

Indicators statistically significantly below target for Māori women screened in Waitemata and North included: coverage in all age groups (lowest in 50-54 years) (48% of ages 50-64 years, target value 70%); the technical recall rate in mobile units (5.4%, target value <3%), the proportion of Māori women having no more than four films in fixed units and mobile units (67.6% and 70.7% respectively, target value >80%).

Other indicators significantly below target for Māori women included: the proportion offered assessment within 15 working days (60.4%, target value 90%), the percentage of open biopsies received within 15 days (40%, target value 90%), and the percentage whose biopsy results were provided within 5 days (74.1%, target value 90%).

[3] Note that **routine rescreening** data is not provided separately for BreastScreen Waitemata and North as women in this region underwent their previous screen before the separation of BreastScreen Auckland and North into three separate providers. Therefore data on rescreening is provided collectively for BSAN and can be found in tables 1b.1 and 1b.2 in this report.

Figure ii: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSWN



BreastScreen Counties Manukau

BreastScreen Counties Manukau (BSCM) reached or exceeded targets for Māori women aged 50 to 64 years for more than half the indicators.[4]

On or above target

For subsequent screens, the indicators for Māori women were either on target or exceeded the targets for the rate of referrals to assessment, the false positive rate, the benign biopsy rate, specificity, the positive predictive value, and the proportion of invasive tumours <15mm.

For initial screens, BSCM reached or exceeded the targets for the invasive detection rate, the positive predictive value, the benign biopsy rate, and the proportion of invasive tumours with no nodal involvement.

Also on or exceeding the targets were the proportion of Māori women with a preoperative definitive diagnosis, the proportion having a needle biopsy within 5 days of assessment, and the percent of women having an open biopsy within 15 days of notification of need for this procedure. The percentage of cancers diagnosed as DCIS fell within the target range. Indicators which significantly exceeded the targets were the technical reject rates in both fixed and mobile units, the technical recall rate in fixed units, and the proportion notified of their screening results within 10 days of undergoing a screen.

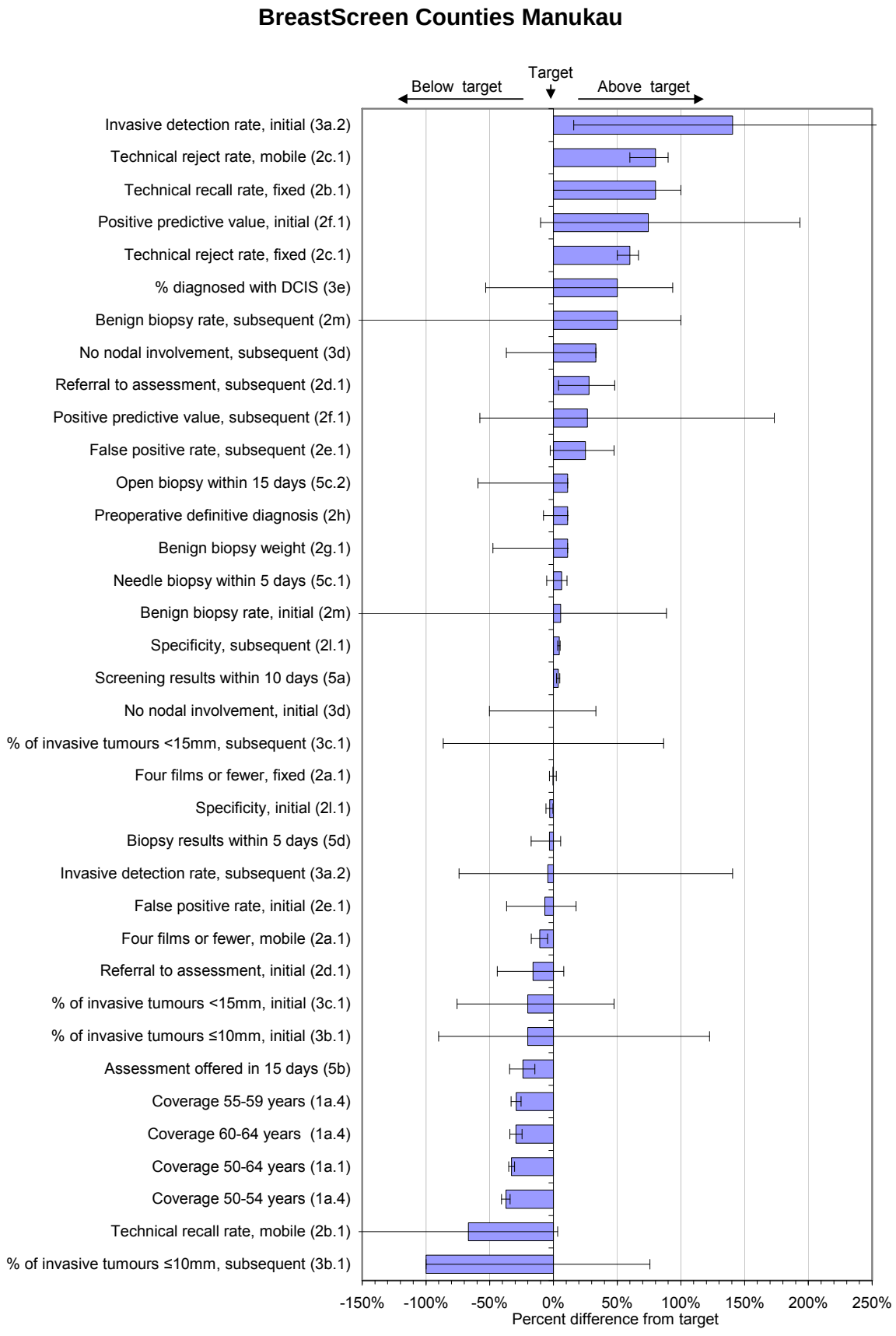
Indicators below target but for which the target lay within the 95% confidence interval included: the proportion receiving biopsy results within 5 days, the invasive detection rate for subsequent screens, the false positive rate for initial screens, the rate of referral to assessment from initial screens, the proportion of invasive tumours ≤ 10mm or <15 mm detected from initial screens, the proportion of tumours ≤ 10mm detected from subsequent screens (none of the 4 tumours detected, target value 25%), and the technical recall rate in mobile units (5%, target value <3%).

Below target

Indicators statistically significantly below target for Māori women screened in Counties Manukau included: coverage in each age group (47% of women aged 50-64 years, target value 70%), the proportion of Māori women requiring four films or fewer in mobile units (71.4%, target value >80%), the proportion offered an assessment within 15 days (68.4%, target value 90%), and specificity for initial screens (90.3%, target value >93%).

[4] Note that **routine rescreening** data is not provided separately for BreastScreen Counties Manukau as women in this region underwent their previous screen before the separation of BreastScreen Auckland and North into three separate providers. Therefore data on rescreening is provided collectively for BSAN and can be found in tables 1b.1 and 1b.2 in this report.

Figure iii: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSCM



BreastScreen Auckland Limited

BreastScreen Auckland Limited (BSAL) reached or exceeded targets for Māori women aged 50 to 64 years for more than half the indicators.[5]

On or above target

For subsequent screens, the indicators for Māori women were either on target or exceeded the targets for the rate of referrals to assessment, the false positive rate, specificity, the positive predictive value, invasive detection rate, the percentage of invasive tumours ≤ 10mm, and the proportion of tumours with no nodal involvement.

For initial screens, BSAL reached or exceeded the targets for the invasive detection rate, the positive predictive value, the benign biopsy rate, specificity, the false positive rate, and the proportion of invasive tumours with no nodal involvement.

Also meeting or exceeding the targets were the proportion of Māori women with a preoperative definitive diagnosis (there were 9 cancers detected in Māori women during this time period in the BSAL region, and all were diagnosed by needle biopsy), the percentage of Māori women having an open biopsy within 15 days, the technical recall rate in fixed units, and the proportion notified of their biopsy results within 5 days of undergoing the procedure. Indicators significantly exceeded the targets for technical reject rates in both fixed and mobile units, and the proportion notified of their screening results within 10 days.

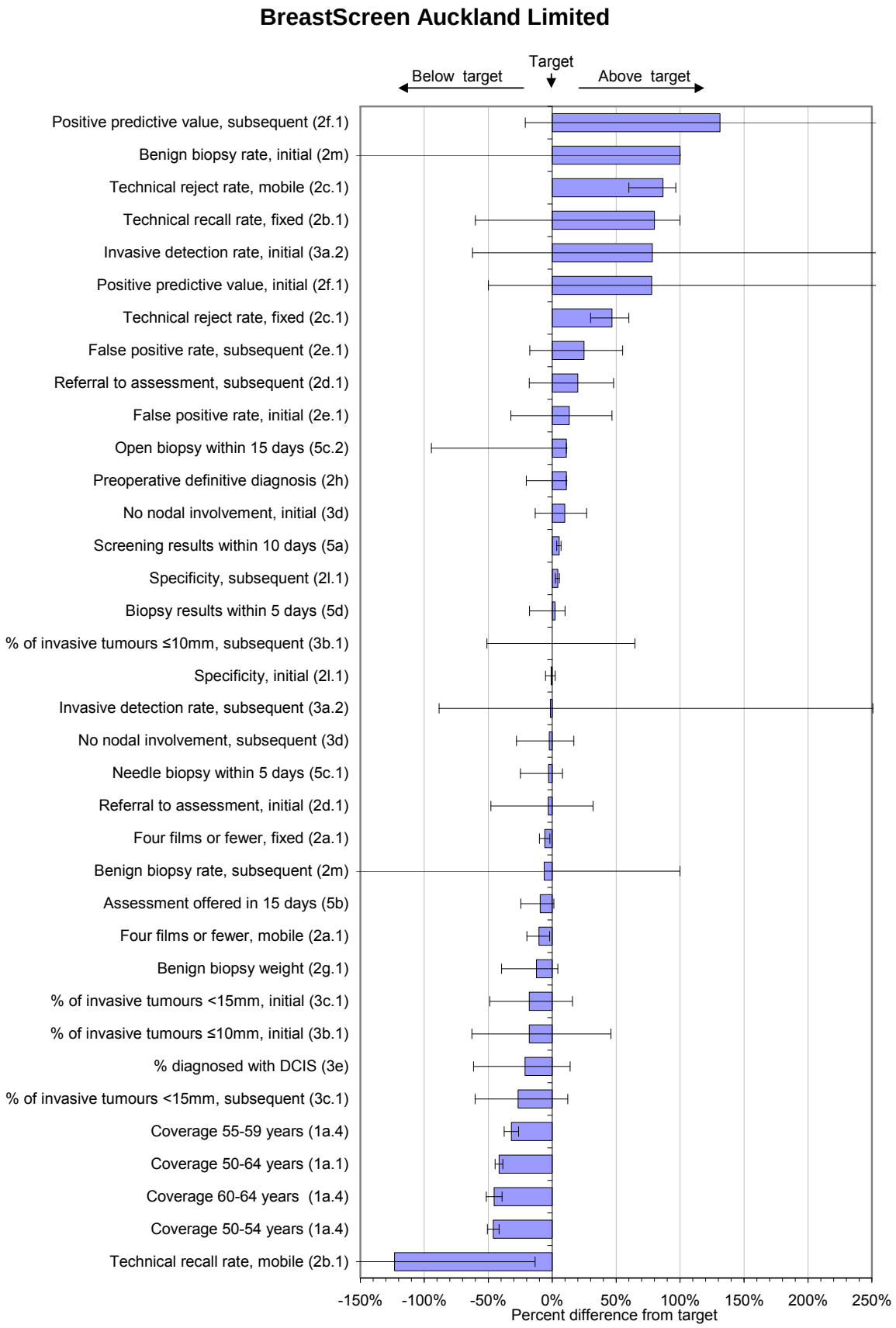
Indicators below target but for which the target lay within the 95% confidence interval included the percentage offered assessments within 15 days, the percentage of benign biopsies below 30g, the percentage of invasive tumours detected from initial screens that were ≤ 10mm and <15mm, and the percentage of tumours diagnosed as DCIS.

Below target

Indicators statistically significantly below target for Māori women screened in Auckland included: coverage in each of the age groups (40.9% of women aged 50-64 years, target value 70%); the proportion of Māori women having no more than four films in fixed and mobile units (75.4% and 71.8% respectively, target value >80%); and the technical recall rate in mobile units (6.7%, target value <3%).

[5] Note that **routine rescreening** data is not provided separately for BreastScreen Counties Manukau as women in this region underwent their previous screen before the separation of BreastScreen Auckland and North into three separate providers. Therefore data on rescreening is provided collectively for BSAN and can be found in tables 1b.1 and 1b.2 in this report.

Figure iv: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSAL



BreastScreen Midland

BreastScreen Midland (BSM) reached or exceeded targets for Māori women aged 50 to 64 years for around half the indicators.

On or above target

For subsequent screens, the indicators for Māori women reached or exceeded the targets for the rate of referrals to assessment, the false positive rate, specificity, the benign biopsy rate, the positive predictive value, and the invasive detection rate.

For initial screens, BSM reached or exceeded the targets for the positive predictive value, the benign biopsy rate, the invasive detection rate, and the proportion of invasive tumours ≤ 10mm.

Indicators significantly exceeded the targets for the technical reject rates in both fixed and mobile units, the technical recall rate in fixed units, the percentage of women rescreened within 20-24 months, the proportion requiring four films or fewer in fixed units, and the proportion notified of their screening results within 10 days. The proportion of tumours diagnosed as DCIS was also within target.

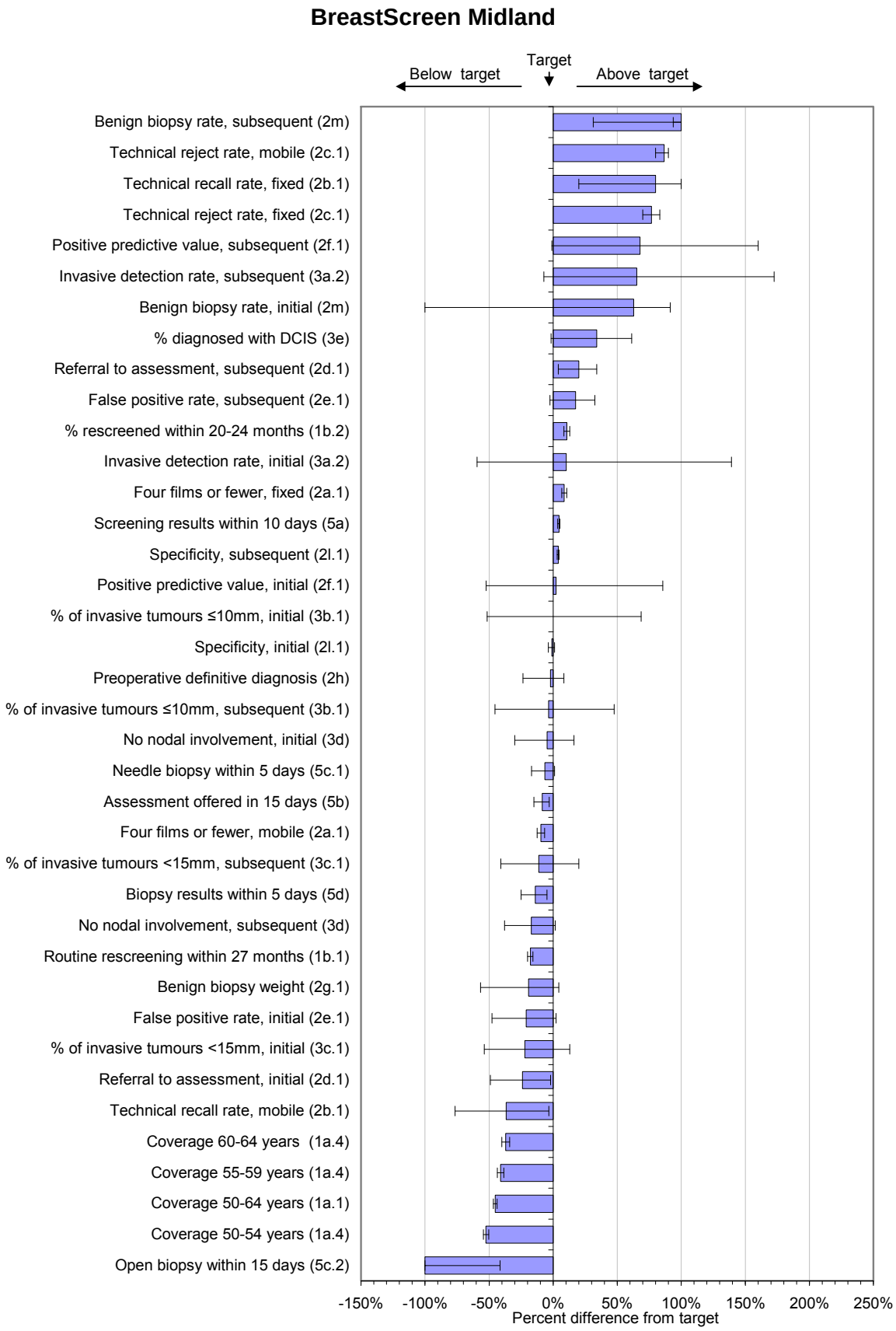
Indicators below target but for which the target lay within the 95% confidence interval included the percentage of Māori women receiving needle biopsies within 5 days, the proportion of invasive tumours <15mm or without nodal involvement in subsequent screens, the proportion of benign biopsies below 30g, the false positive rate from initial screens, and the percentage of invasive tumours <15mm detected from initial screens.

Below target

Indicators statistically significantly below target for Māori women screened in Midland[6] included: the proportion receiving open biopsies within 15 days (none of the 4 open biopsies were performed within 15 days), coverage in each of the age groups (38.4% of women aged 50-64 years, target value 70%); the technical recall rate in mobile units (4.1%, target value <3%); the rate of referral to assessment from initial screens (12.4%, target value <10%); the rate of routine rescreening within 27 months (69.9%, target value 85%), the proportion receiving biopsy results within 5 days (77.5%, target value 85%); the proportion requiring four films or fewer in mobile units (72.4, target value >80%); the proportion offered assessment in 15 days (82.4%, target value 90%); and the specificity of initial screens (89%, target value >93%).

[6] Note: The Midland region has a higher number of Māori women than many other regions. For this reason, some indicator results are more likely to be statistically significant than those in other regions.

Figure v: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSM



BreastScreen Coast to Coast

Breast Screen Coast to Coast (BSCtoC) reached or exceeded the targets for Māori women aged 50 to 64 years for over half the indicators.

On or above target

For subsequent screens, the indicators for Māori women reached or exceeded the targets for the rate of referrals to assessment, the false positive rate, specificity, the benign biopsy rate, the positive predictive value, the invasive detection rate, and the proportion of invasive tumours ≤10mm and <15mm.

For initial screens, BSCtoC reached or exceeded the targets for the positive predictive value, specificity, benign biopsy rate, the invasive detection rate, and the proportion of invasive tumours ≤ 10mm.

Other indicators on or above target included the technical reject rates for mobile and fixed units, the proportion of Māori women receiving their needle biopsy within 5 days, the proportion notified of their screening results within 10 days, the preoperative definitive diagnosis rate, the proportion of Māori women screened in fixed units requiring four films or fewer, and the percentage rescreened within 20-24 months.

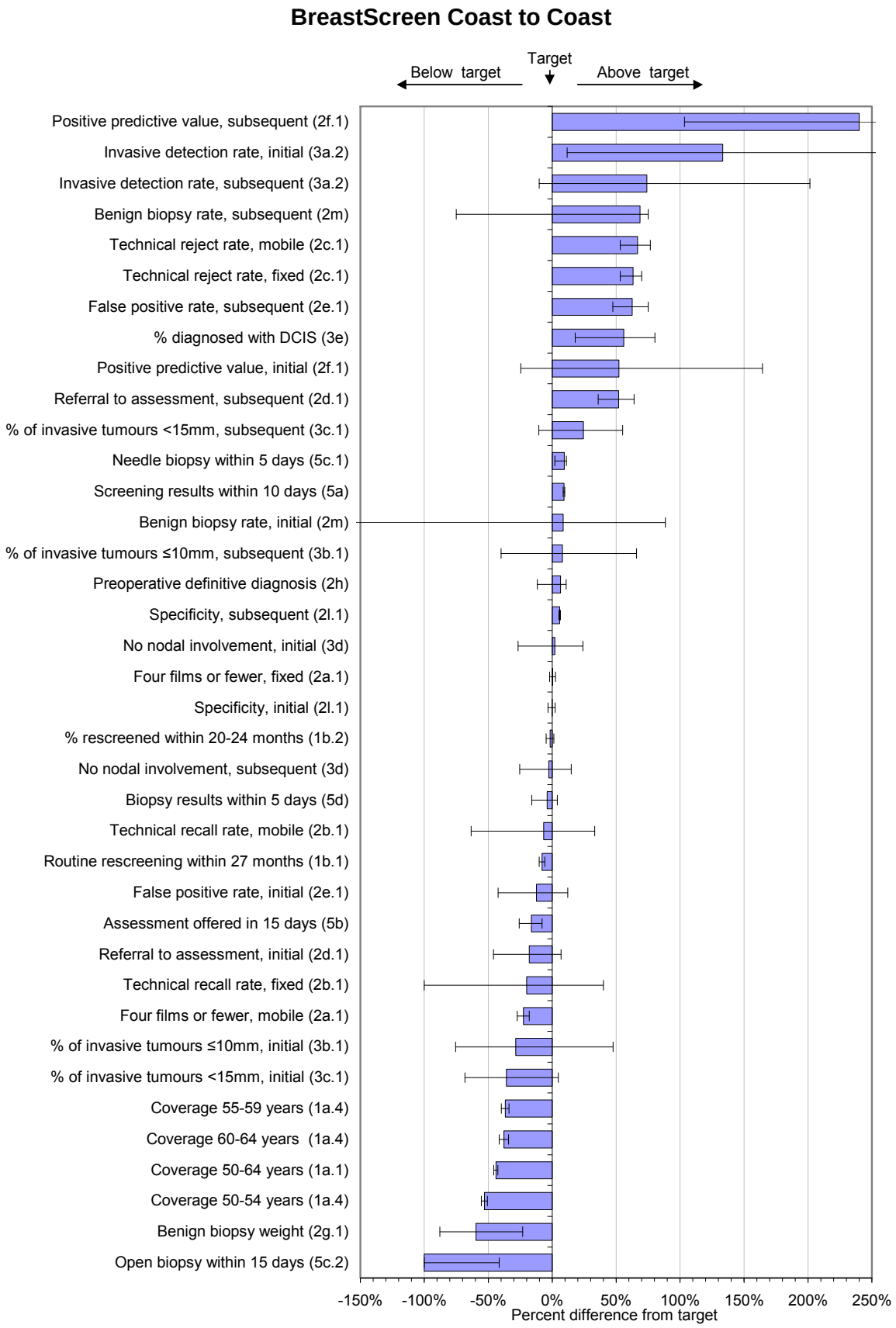
Indicators below target but for which the target lay within the 95% confidence interval included the percentage receiving needle biopsies within 5 days, the proportion of invasive tumours detected in subsequent screens that were <15mm in diameter or without nodal involvement, the proportion of benign biopsies below 30g, the false positive rate from initial screens, and the percentage of invasive tumours <15mm detected from initial screens.

Below target

Indicators statistically significantly below target for Māori women screened in the Coast to Coast region[7] included: the proportion receiving open biopsies within 15 days (none of the 4 open biopsies were performed within 15 days); the proportion of benign biopsies less than 30g (36% of the 11 open biopsies conducted within the 7 year period, target value >90%); coverage in each of the age groups (39.2% of women aged 50-64 years, target value 70%); the proportion requiring four films or fewer in mobile units (62%, target value >80%); the proportion offered assessment within 15 days (75.4%, target value 90%); and the rate of routine rescreening within 27 months (78.3%, target value 85%).

[7] Note: The Coast to Coast region has a higher number of Māori women than many other regions. For this reason, some indicator results are more likely to be statistically significant than those in other region.

Figure vi: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSCtoC



BreastScreen Central

Breast Screen Central reached or exceeded the targets for Māori women aged 50 to 64 years for well over half the indicators.

On or above target

For subsequent screens, the indicators for Māori women reached or exceeded the targets for the rate of referrals to assessment, the false positive rate, specificity, the positive predictive value, the invasive detection rate, the proportion of invasive tumours ≤10mm and <15mm and the proportion of invasive tumours without nodal involvement.

For initial screens, BSC reached or exceeded the targets for the positive predictive value, specificity, the benign biopsy rate, the false positive rate, the invasive detection rate, and the proportion of invasive tumours with no nodal involvement.

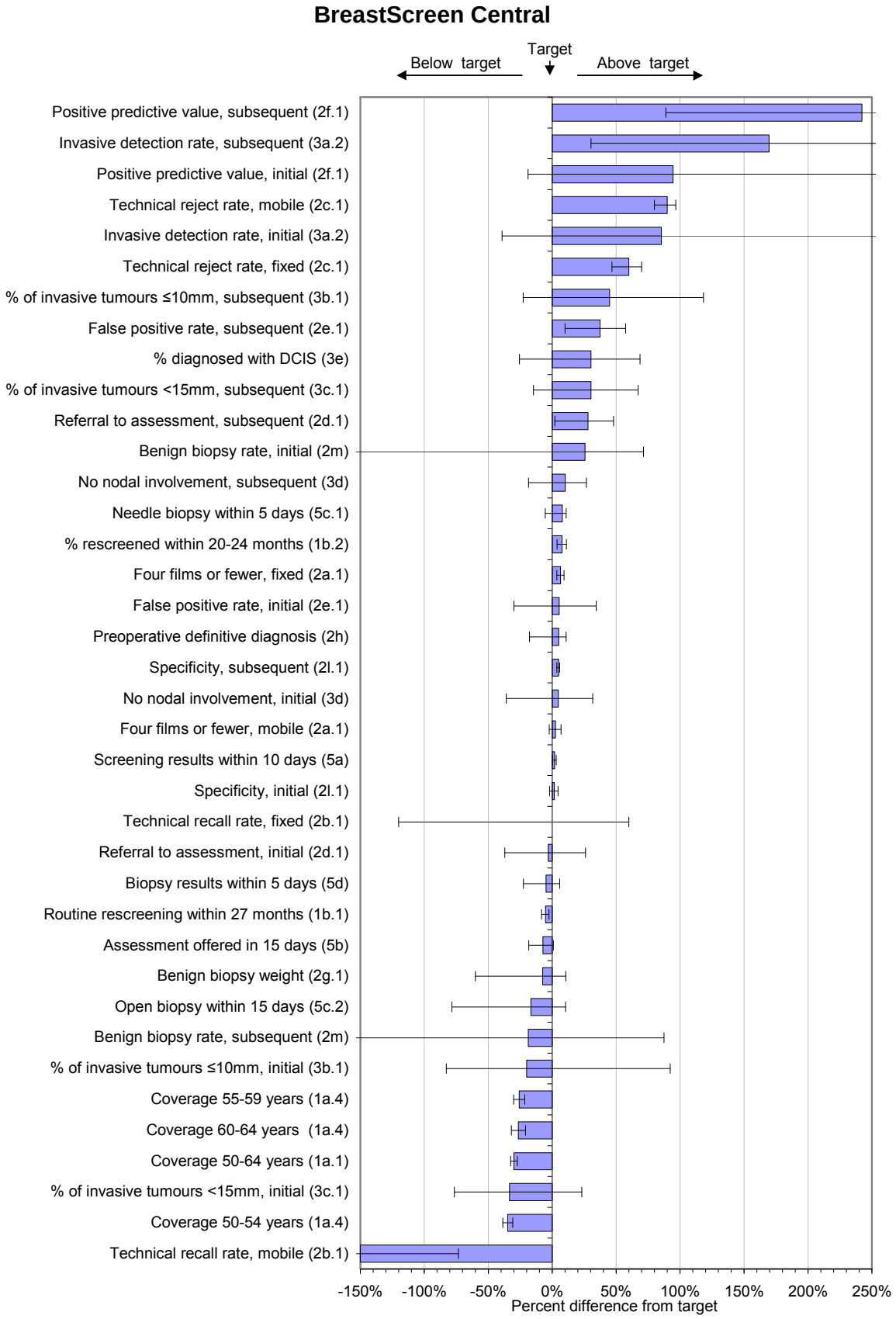
Other indicators on or above target included the technical reject rates for mobile and fixed units, the proportion requiring four films or fewer in fixed and mobile units, the technical recall rate in fixed units, the percentage of those rescreened within 27 months who were rescreened within 20-24 months, the proportion receiving their screening results within 10 days, the proportion of Māori women receiving their needle biopsy within 5 days, and the proportion with a preoperative definitive diagnosis. The proportion of cancers diagnosed as DCIS fell within the target range.

Indicators below target but for which the target lay within the 95% confidence interval included the proportion offered assessment in 15 days, the benign biopsy rate for subsequent screens, the proportion receiving open biopsies within 15 days, the percentage receiving biopsy results within 5 days, the proportion of benign biopsies less than 30g, and the proportion of invasive tumours detected from initial screens that were ≤10mm or <15 mm.

Below target

Indicators statistically significantly below target for Māori women screened in the Central region included coverage in each of the age groups (49.1% of women aged 50-64 years, target value 70%), the rate of routine rescreening within 27 months (80.5%, target value 85%), and the technical recall rate for Māori women screened in mobile units (7.5%, target value <3%).

Figure vii: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSC



BreastScreen South Limited

Breast Screen South Limited reached or exceeded the targets for Māori women aged 50 to 64 years for the majority of the indicators.

On or above target

For subsequent screens, the indicators for Māori women reached or exceeded the targets for referrals to assessment, false positive rate, specificity, the positive predictive value, the invasive detection rate, and the benign biopsy rate.

For initial screens, BSSL reached or exceeded the targets for the positive predictive value, specificity, the false positive rate, the invasive detection rate, and the proportion of invasive tumours ≤ 10mm and <15mm.

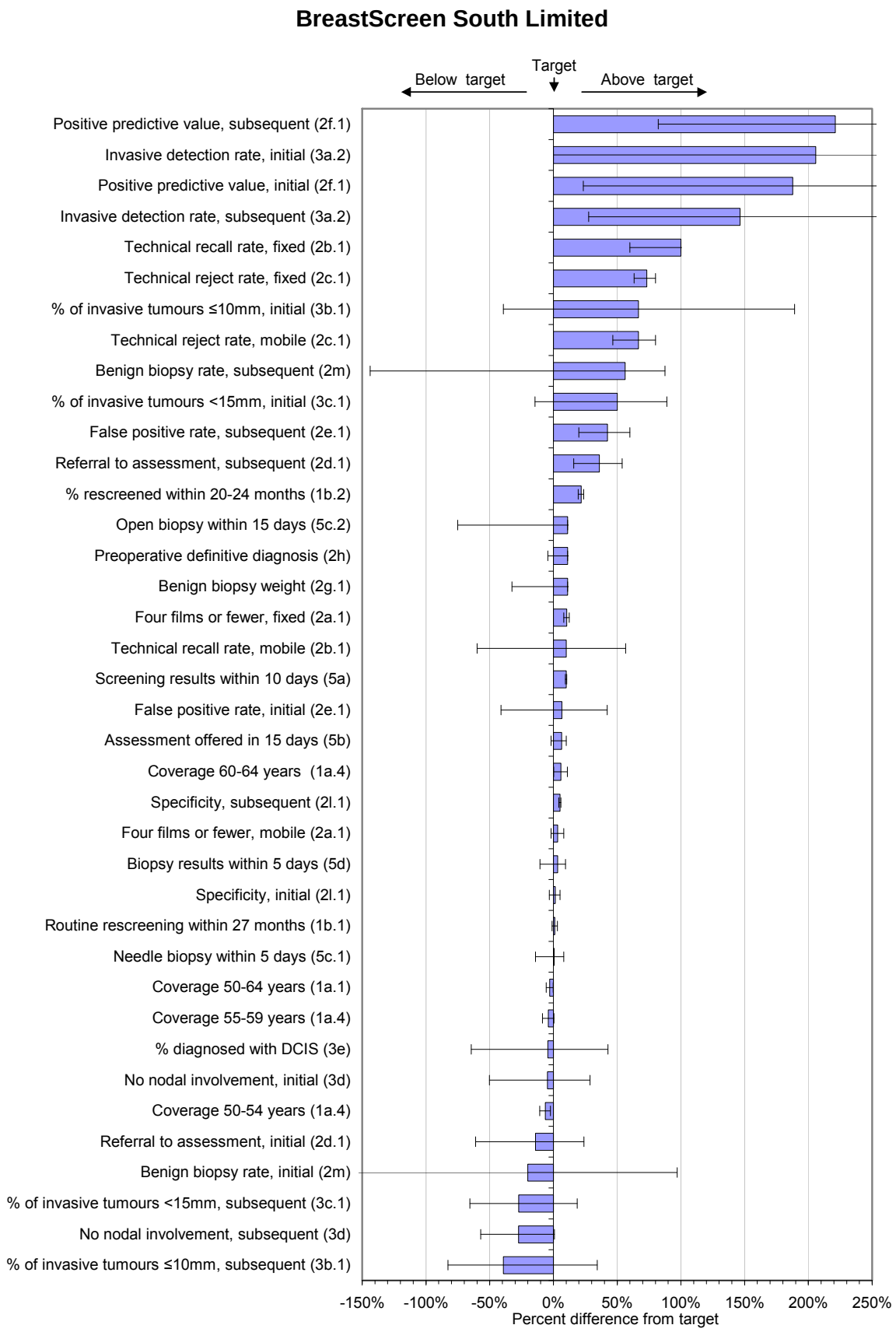
Other indicators on or above target included the technical reject rates for mobile and fixed units, the technical recall rates from mobile and fixed units, the proportion routinely rescreened within 27 months and of those the proportion rescreened within 20-24 months, the coverage rate for Māori women aged 55-59 and 60-64 years, the proportion receiving their screening results within 10 days, the proportion of Māori women requiring four films or fewer in fixed and mobile units, the proportions of Māori women offered assessment within 15 days and needle biopsy within 5 days, who receive their biopsy results within 5 days, who have a preoperative definitive diagnosis, and the proportion of benign biopsies under 30 g.

Indicators below target but for which the target lay within the 95% confidence interval included the coverage of Māori women aged 55-59 years, the rate of referral to assessment for initial screens, the benign biopsy rate for initial screens, the proportion of invasive tumours detected from subsequent screens that were ≤10mm or 15mm or with no nodal involvement, and the proportion of tumours diagnosed as DCIS.

Below target

The coverage of Māori women aged 50-54 years was just below target (65.5%, target value 70%). Although the coverage for Māori women aged 55-59 years and 60-64 years reached the target, the overall coverage for Māori women aged 50-64 years almost reached the target at 68%.

Figure viii: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSSL



BreastScreen Health Care

Breast Screen Health Care met or exceeded the targets for Māori women aged 50 to 64 years for several indicators.

On or above target

For subsequent screens, the indicators for Māori women in BSHC met or exceeded targets for the rate of referrals to assessment, the false positive rate, and specificity.

For initial screens BSHC met or exceeded the targets for the rate of referrals to assessments, specificity, the benign biopsy rate, and the false positive rate.

Other indicators which met or exceeded the targets include the technical reject rate for fixed and mobile units, the technical recall rate for fixed units, the percentage of Māori women screened in mobile units who required four films or fewer, the proportion receiving their open biopsy within 15 days, and the percentage notified of their screening results within 10 days.

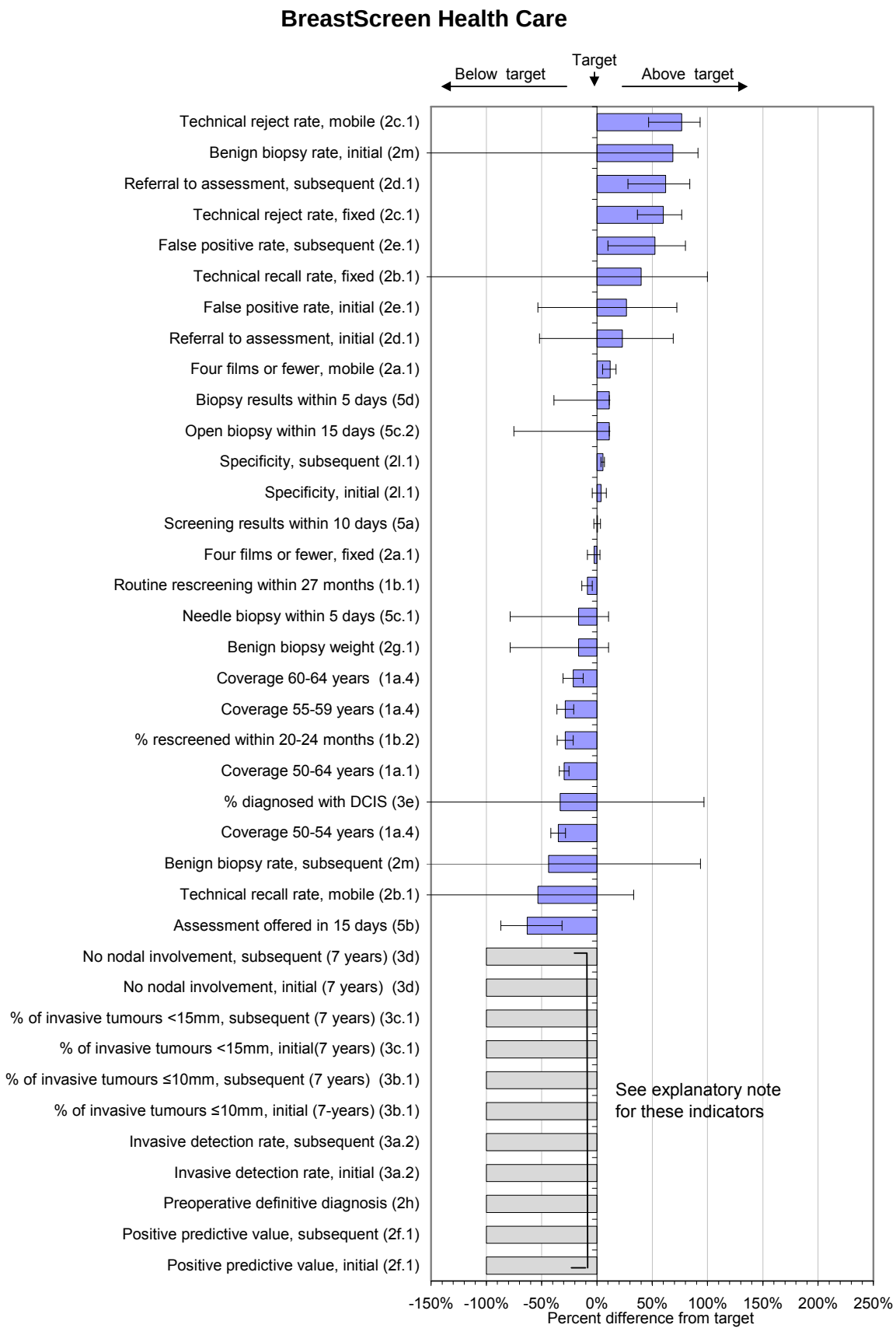
Indicators below target but for which the target lay within the 95% confidence interval included the proportion receiving their needle biopsy within 5 days, the proportion of benign biopsies weighing under 30g, the percentage diagnosed with DCIS, the benign biopsy rate for subsequent screens, and the technical recall rate for mobile units.

Below target

Indicators statistically significantly below target for Māori women screened in BSHC included: coverage in each age group (49.2% for women aged 50 to 64 years, target value 70%), the percentage routinely rescreened within 27 months (77.6%, target value 85%), the proportion rescreened within 20-24 months (53.5%, target value 75%), and the proportion of Māori women offered assessments within 15 days (33.3%, target value 90%).

Note that for the two year time period January 2006 to December 2007, no cancers (either invasive or DCIS) were detected in Māori women screened by BSHC. In the 7 year period 2001 to 2007, there were two invasive cancers detected in Māori women in initial screens, none in subsequent screens, and one DCIS detected. Both invasive cancers detected were over 15mm in diameter, and both were node positive. These results have produced rates of 0% for several detection indicators (see Figure 9).

Figure ix: Indicators above and below target for Māori women aged 50 to 64 years, January 2006 to December 2007, BSHC



INTRODUCTION

This report is the first in a new time series of independent Māori monitoring reports commissioned to measure the quality of BreastScreen Aotearoa (BSA) services for Māori women. Using the standard indicators and targets developed by the National Screening Unit, it presents the results for Māori and non-Māori women and the Māori/non-Māori ratios for each indicator as a measure of equality or inequality. Data on coverage, screening and assessment quality, and timeliness is presented for the two-year period January 2006 to December 2007, while data on detection and treatment is presented for the seven-year period 2001-2007 due to the smaller numbers involved.

An initial independent Māori monitoring report, published in October 2008[8], covered the period July 2004 to June 2006. In the initial report, rates were calculated out of the total *number of screens* for a given time period. However, in this report, rates are calculated out of the total *number of women screened*. Therefore, for most indicators, other than treatment, the two reports are not comparable.

The right to the highest attainable standard of health for all is reflected in the overarching aim of the New Zealand Cancer Control Strategy to reduce inequalities with respect to cancer. The vision of the National Screening Unit is to save lives, reduce inequalities and build health by leading the delivery of high quality screening programmes, including BSA. Screening contributes to reduced morbidity and mortality from breast cancer by identifying cancers at an early stage, allowing treatment to be commenced sooner than might otherwise have been possible[9].

Disparities in breast cancer outcomes between Māori and non-Māori women are substantial. During the period 2000–2004 breast cancer incidence for Māori women aged 45-64 years was only 8% higher than that of non-Māori women while breast cancer mortality in this age group was 66% higher. New Zealand Cancer Registry data shows that Māori women were significantly less likely than non-Māori to be diagnosed at localised stage and more likely to be diagnosed at distant stage of disease spread.[10] Earlier diagnosis, prompt follow-up and timely treatment of breast cancers among Māori women could contribute substantially to reduced disparities in breast cancer outcomes.

BreastScreen Aotearoa plays a vital role in fulfilling the right to health for all and the elimination of inequalities in breast cancer outcomes, 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. BSA's commitment to reducing inequalities is reflected in its identification of Māori women as a priority group for invitation, screening, re-screening and treatment.[11]

Appropriate monitoring of BSA quality indicators for Māori women is fundamental to improving the effectiveness of the service in reducing Māori women's morbidity and mortality from breast cancer and reducing disparities in outcomes. Without good quality information, plans and actions taken to improve quality may not lead to more equitable and effective screening service delivery.

This baseline Māori monitoring report, and the reports hereafter will enable BreastScreen Aotearoa, the Lead Providers, and Independent Service Providers to track their progress towards the equity goals of the programme. It may also illuminate those areas where effective breast screening is being provided to Māori women. We hope it will also inform Māori communities in our considerations of how the right to health might best be fulfilled in regard to breast cancer and screening.

[8] Simmonds S, Robson B. 2008. *Independent Māori Monitoring Report 1. BreastScreen Aotearoa July 2004 to June 2006 50-64 years.* Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare.

[9] National Screening Unit.2003.*Strategic Plan 2003-2008*. Auckland: Ministry of Health.

[10] Cormack D, Purdie G, Robson B. 2007. Cancer. In B. Robson, R. Harris (eds*). Hauora: Māori Standards of Health IV. A study of the years 2000-2005*. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare.

[11] BSA 2004. *BSA National Policy and Quality Standards* Version 1A. Introduction page 11.

BACKGROUND

BreastScreen Aotearoa[12]

Prior to 1991 there was an ad hoc approach to screening for breast cancer. Women who were aware of the importance of mammography screening, and could afford it, sought out services if they were available in the region. In 1991, two pilot mammography programmes were conducted in the Waikato and Otago regions, and in June 1995 the Minister of Health announced that the Government would be introducing a nationwide breast cancer screening programme for women aged 50 to 64 years of age. Between 1996 and 1998 work was undertaken on the development of national targets and indicators, a national monitoring and evaluation system and an information system to support the programme.

It was decided that BSA services would be delivered through six Lead Provider organisations. Two-yearly, two-view mammography screening for asymptomatic women would be offered to women aged 50-64 years. The age range was to be reviewed at a later date. The decision to restrict screening to this age range was in response to concerns that the health service may not have had sufficient trained staff such as MRTs and radiologists to operate a breast screening programme, and that there may have been major flow-on effects for breast surgery and radiation oncology departments.

In June 1996 the Ministry of Health (MoH) published the Interim National Quality Standards. Following a tendering process for the services in 1997, contracts were entered into with six main Lead Providers in 1998.

BreastScreen Aotearoa was launched nationally in December 1998 with services being offered in each of the Lead Provider regions from that time.

The National Screening Unit

The National Screening Unit (NSU) is a separate unit of the Ministry of Health and is responsible for:

- National management and oversight of BreastScreen Aotearoa
- Funding of BSA providers
- National co-ordination of Providers
- National health promotion activities (including development of standardised resources and national promotions)
- National strategy and policy development
- National monitoring, evaluation and audit

BSA Providers

A BreastScreen Aotearoa Provider is defined as being any Lead Provider, subcontracted Provider or Independent Services Provider who deliver services on behalf of BreastScreen Aotearoa.

[12] Extracted from BreastScreen Aotearoa National Policy and Quality Standards, February 2004

Independent Service providers

Independent Service Providers (ISPs) are contracted by the NSU to provide health promotion, invitation and support services directly to specific groups of women who might otherwise not be reached by Lead Providers, that is, Māori and Pacific women. Lead Providers and ISPs work in partnership with each other while being accountable to the NSU.

BSA Lead Providers

Each Lead Provider is responsible for services in their region such as health promotion, invitation to the screening programme, screening, assessment, referral to treatment and quality assurance. A Lead provider may provide these services directly or subcontract to another provider, except those services provided by an Independent Service Provider in their region. Screening is provided at both fixed and mobile sites throughout each region. Originally in 1998, six Lead Providers were established (see table 1).

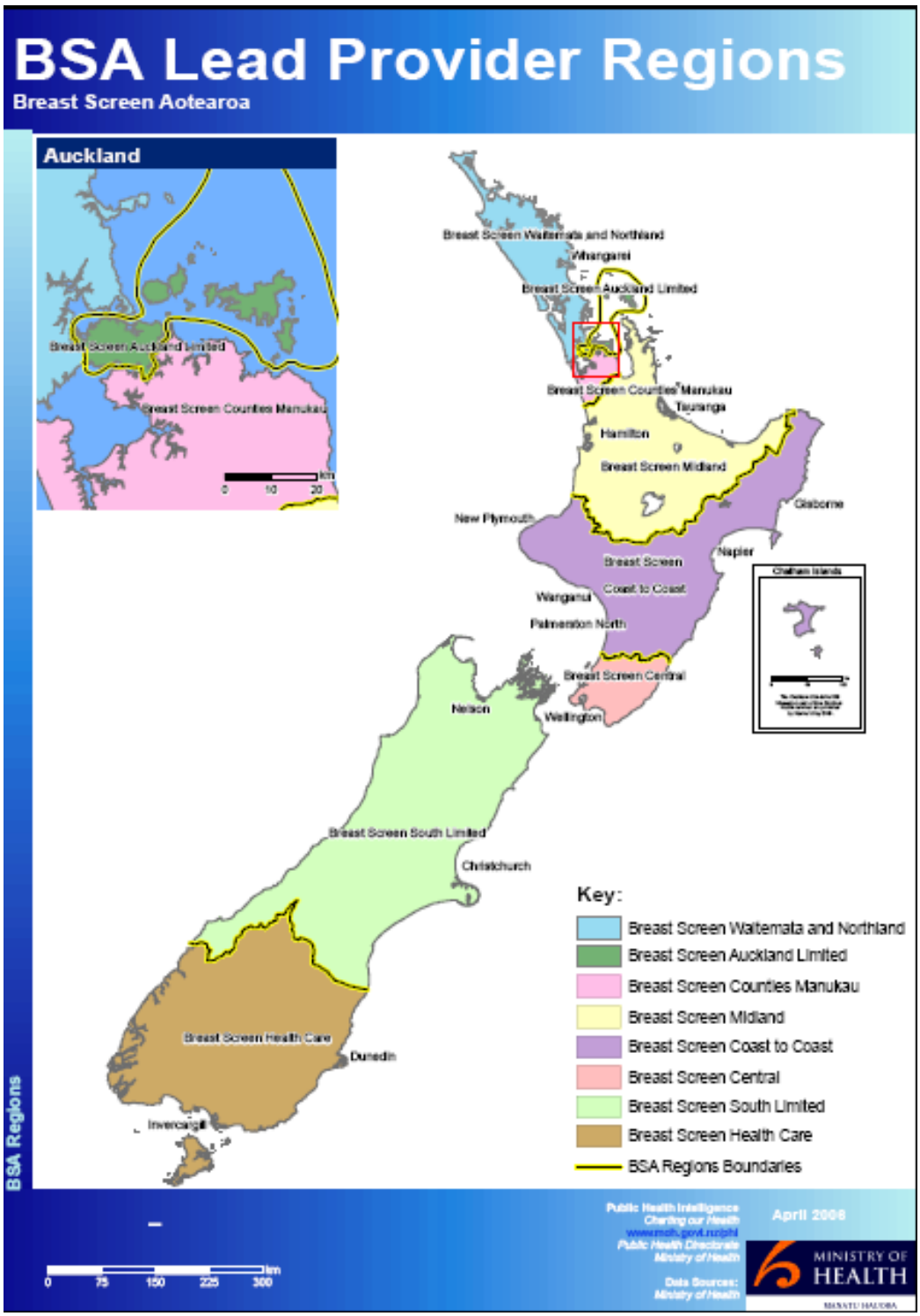
Changes to Lead Providers:

In July 2005 BreastScreen Auckland and North (BSAN) was restructured into three lead providers BreastScreen Auckland Limited (BSAL), BreastScreen Counties Manukau (BSCM), and BreastScreen Waitemata and North (BSWN). BSCM began screening in September 2005. Data for BSAL, BSCM and BSWN is therefore limited for many indicators, and for the seven and two year time periods throughout this report. Where appropriate, the data for these providers has been combined and termed 'Auckland and North'.

Table 1: BSA Lead Providers' abbreviations and period in programme

Abbreviation	Lead Provider	Inception and period of programme
BSAN	BreastScreen Auckland and North	1999 to June 2005
BSAL	BreastScreen Auckland Limited	July 2005 to present
BSCM	BreastScreen Counties Manukau	October 2005 to present
BSWN	BreastScreen Waitemata and North	February 2006 to present
BSM	BreastScreen Midland	1999 to present
BSCtoC	BreastScreen Coast to Coast	1999 to present
BSC	BreastScreen Central	1999 to present
BSSL	BreastScreen South Limited	1999 to present
BSHC	BreastScreen HealthCare	1999 to present

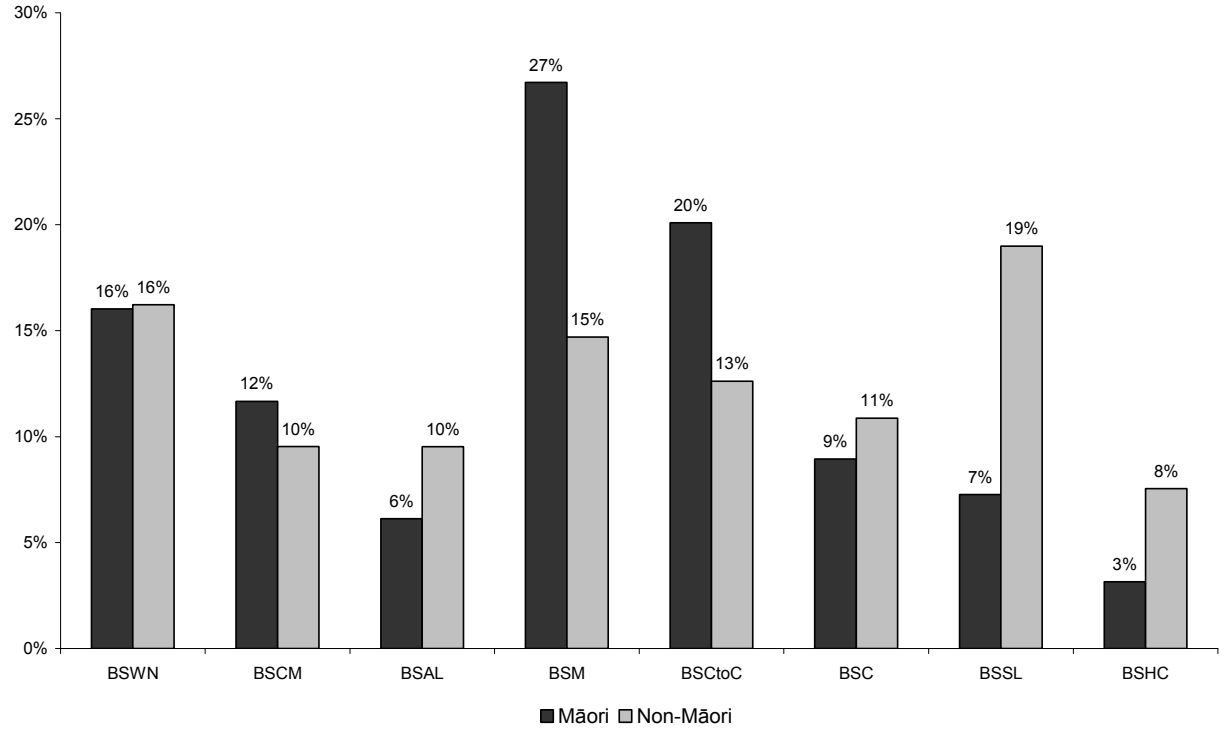
Figure x: Map of BSA Lead Provider Regions



Age extension

Since 1999, BSA has offered free mammography screening for all women aged 50–64 years. The age range of women screened by BSA was extended in June 2004 to include the age groups 45–49 years and 65-69 years. Following this extension, a prioritisation system was put into place. Providers needed to screen in the following order: rescreens, age 65-69, 50-69 then 45-49 years. This meant that many providers were unable to start inviting women aged 45-49 to register until July 2005. For the 65-69 year age group, invitations commenced July 2004. Because the data for these two age groups is incomplete and the numbers of Māori women screened in these age groups are relatively small, this report includes data for women aged 50-64 years only.

Figure xi: Distribution of Māori and non-Māori women aged 50 to 64 years by Lead Provider region



Source: Statistics NZ Population Projections 2007 (provided by BSA)

Figure xi shows the national distribution of Māori and non-Māori women aged 50–64 years in the regions covered by each lead provider. This is the potential population for BreastScreen Aotearoa, and does not necessarily reflect the numbers enrolled in a provider.

It is important to recognise the regions with high concentrations of Māori women in the target age group, as the performance of BSA in these regions will have considerable impact on the Māori population as a whole.

Māori Advisory Group

In 2003 the NSU established the Māori Advisory Group in order to support the NSU to achieve its mission. The group comprises up to 12 members who have particular expertise on Māori health issues and screening programmes. At the time of consultation for this report, the Māori Advisory Group consisted of the following members:

Sandra Corbett
Te Arawa
Kaiwhakahaere/Māori co-ordinator
National Cervical Screening Programme, Hawkes Bay DHB
NSAC Representative

Hinarata Campin
Ngāti Porou, Ngāpuhi, Ngāti Wai
Health Promotion Co-ordinator, BreastScreen South
Kaimahi Representative

Barbara Greer
Kāi Tahu, Kāti Mamoe, Ngāti Porou, Ngāti Apa
Member of Quality Improvement Committee (QIC)
Tumuaki for Rata Te Awhina Trust Health and Social Services
Māori Women's Welfare League Representative

Beth Quinlan
Ngāti Whatua, Ngāpuhi
Community Smeartaker/Educator, Northland DHB

Deb Rowe
Ngāi Tahu
Nurse Consultant/Lecturer, joint appointment between Auckland DHB and University of Auckland
MAG Chairperson

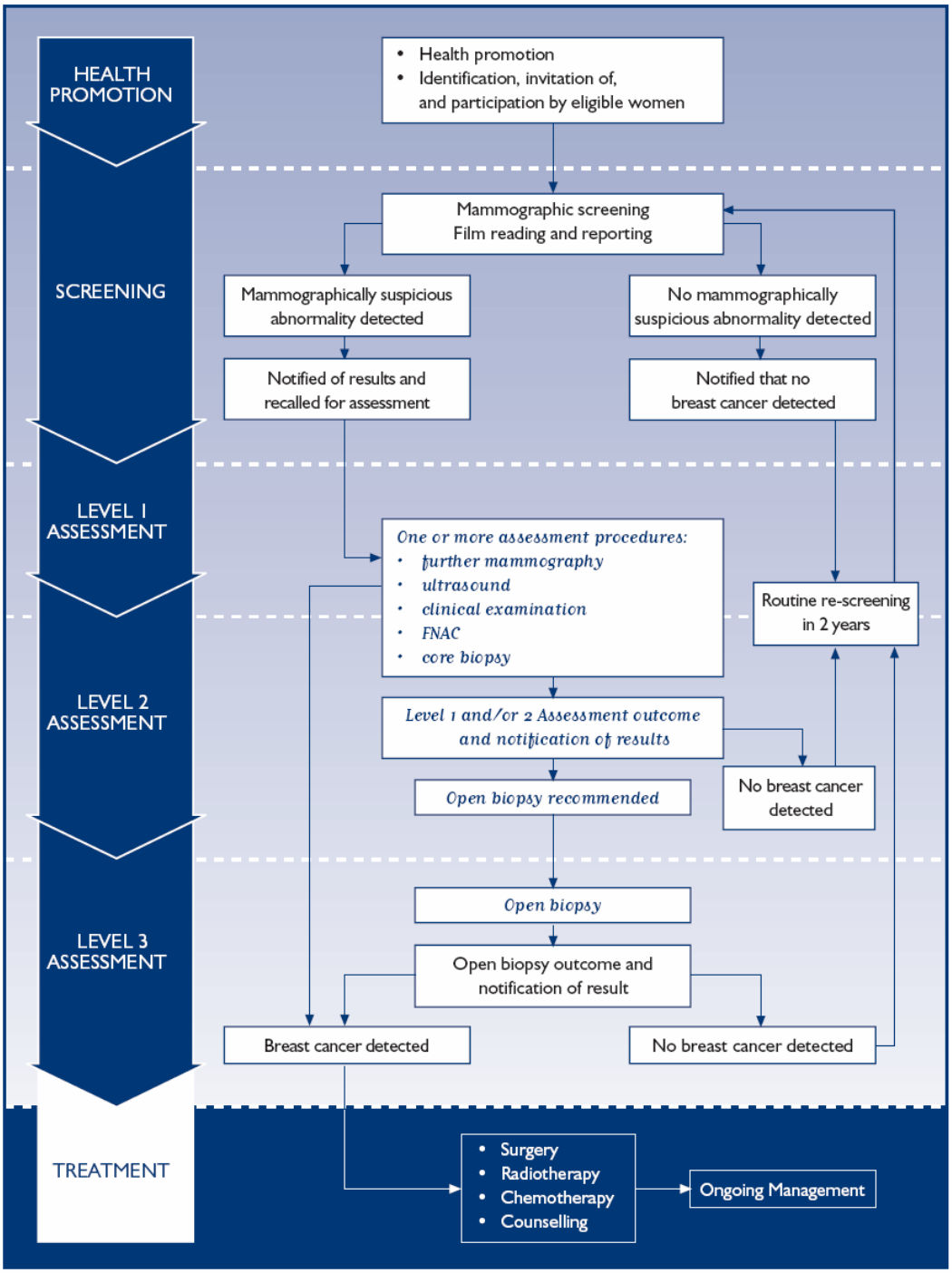
Gary Thompson
Ngāti Paoa, Ngāti Haua
Inequalities Project Manager
Northern Cancer Network

Whaea Jo Barnaby
Ngāti Awa, Te Arawa
Manager Te Teko Hauora
Ex-NCSP Health Promoter/Smear Taker
Kuia mō te rōpū

Dr Melissa McLeod
Ngāi Tahu
Public Health Physician
Eru Pōmare Māori Health Research Centre
Otago School of Medicine, Wellington

The Breast Screening pathway[13]

Figure xii: The Breast Screening Pathway



[13] BreastScreen Aotearoa National Policy and Quality Standards, February 2004

BSA monitoring process

This section describes the process used to produce the Māori independent monitoring reports for BSA.

Data are sent monthly from the eight BreastScreen Aotearoa Lead Providers (LPs) to the Information Directorate of the Ministry of Health. The data are checked at the Information Directorate, amalgamated into a single file, and sent to the National Screening Unit (NSU). The NSU runs further checks, then collates the data into Māori and non-Māori tables, for 2-year, and in some cases 7-year data. The tables are sent to the Eru Pōmare Māori Health Research Centre at the University of Otago, Wellington - the Independent Māori Monitoring Group (IMMG). The IMMG produces the report tables, including ratios of Māori:non-Māori data, and calculates confidence intervals where appropriate (due to the small numbers). The report is then produced, including an analysis of actual data against national indicators and targets, explanatory notes and commentary.

The IMMG sends the first draft of the Independent Māori Monitoring Report (IMMR) to BSA for verification and review. After discussion of any factual errors, inaccuracies or omissions, the draft IMMR is updated and sent back to BSA. The updated IMMR draft is sent to members of the NSU Māori Advisory Group (MAG) prior to a collective meeting, where it is presented and discussed. The MAG provides consumer and provider context for the report and makes recommendations for programme improvement. The final draft report is then circulated to Lead Providers (LPs) for comment. Any factual errors are corrected prior to publication.

Technical notes for interpreting this report

Ethnicity Classification

Ethnicity data is derived from the BSA registration form. The BSA policy is that providers use the standard ethnicity question as outlined in the Ministry of Health Ethnicity Data Protocols and for data entry systems to allow for coding multiple ethnic groups. Most indicators use ethnicity data from the most recent screening episode, apart from the re-screening indicator.

In this report, non-Māori data is derived from the total number of women minus those classified as Māori. This means that records with missing ethnicity data are counted as non-Māori. However, it is estimated that less than 1% of records have ethnicity missing.

Time trends for indicators

Time trends for many indicators in the 2nd IMMR are unable to be reported due to a change in the way the rates are calculated. Previously, rates were calculated out of the total *number of screens* for a given time period (for example, the number of cancers detected per 1,000 screens). However, in this report, rates are calculated out of the total *number of women screened*. Therefore, for a longer time period such as 6 or 7 years, rates will not be comparable as the number of screens will exceed the number of women screened, assuming an individual is screened on average every two years. For two-year data, it is possible that a woman may be screened twice within this time period as some subsequent screens may be undertaken as early as within 20 months of their previous screen. Therefore it cannot be assumed that the number of screens in a two-year period will equal the number of women screened.

Therefore, time trends in the 2nd IMMR can only be reported for:

- Initial screens (as the number of screens is equivalent to the number of women screened)
- Treatment indicators (as this data is not dependant on the number of screens)

Caution is required when comparing data from the 1st IMMR with this 2nd IMMR.

For this reason this current report is considered to be the first in the ongoing monitoring series and it is intended that future reports will examine trends over time.

The practice of calculating rates using the number of women screened as denominator is in line with the General Monitoring Reports produced by the Independent Monitoring Group.

Population denominators

The eligible populations in these reports have been calculated from projected resident populations in each lead provider district, provided by Statistics New Zealand. The projections are based on the 2001 New Zealand Census, assuming medium fertility, medium mortality, medium inter-ethnic mobility and medium migration.

The 2007 projected population (as at December 2007) was used. This is the same population that is used for all BSA quality and contract monitoring for the period July 2007 to June 2008. See Appendix one for denominator data. These data are used to calculate coverage rates, but are not used for most other indicators.

Confidence intervals

In this report, 95% confidence intervals were calculated for all indicators assuming they are being considered individually. Values in this report (rates, ratios) are calculated estimates of the 'true' values in the population. The 95% confidence interval indicates that there is a 5% chance that the 'true' value lies outside the range of values contained by the confidence interval (CI). Therefore, the wider the CI, the less precise the estimate is to the true population parameter.

Confidence intervals for proportions were calculated exactly, using the F distribution.

Confidence intervals for ratios were calculated exactly, based on the method described by Chan (2003)[14]. Microsoft Excel was used for most calculations but STATA was used where stated.

Ratios of Māori to non-Māori values are provided throughout this report as an indicator of ethnic disparity for each of the targets. A ratio of 1.0 indicates no difference between the two ethnic groups. For each target, it is stated whether a ratio of above or below 1.0 is unfavourable to Māori. 95% confidence intervals are provided for ratios. Should the CI include 1.0, it is possible that the 'true' ratio for the population is 1.0 and therefore does not indicate a disparity between Māori and non-Māori. Such ratios are considered to be not statistically significant.

Targets

Rates that have not met the BSA targets have been shaded in each table throughout this report. They are only shaded if the confidence interval does not include the target. A footnote beneath each table states whether ratios above or below 1.0 are unfavourable to Māori.

[14] Chan I.S.F. (2003), Statistical Methods in Medical Research; 12: 37 – 58

Screening test validity

No screening test is perfect. False positive and false negative results may be produced during screening and can be potentially harmful, leading to either unnecessary diagnostic tests or treatment (false positive) or an undetected condition (false negative). Therefore, there are four possible test results in any form of screening: true positive, true negative, false positive and false negative. These can be summarised in the following diagram.

Figure xiii: Template for calculation of test validity

	DISEASE	
	Positive	Negative
TEST Positive	True Positive (TP)	False Positive (FP)
TEST Negative	False Negative (FN)	True Negative (TN)

Source: Adapted from Grimes and Schulz (2002)[15]

Four measures of screening test validity are commonly used:

Sensitivity = TP / (TP+FN)
This is the probability of testing positive when the disease is present (out of those who have cancer, how many screened positive?)

Specificity = TN/(TN+FP)
This is the probability of screening negative if the disease is truly absent (out of those who don't have cancer, how many screened negative?)

Positive predictive value (PPV) = TP/TP+FP
The probability that an individual with a positive test actually has the disease (out of those who screen positive, how many have cancer?)

Negative predictive value (NPV) = TN/(TN+FN)
The probability that an individual with a negative test is truly disease free (out of those who screen negative, how many do not have cancer?)

Sensitivity and specificity are inversely related, there is some trade-off between them, which depends on the cut-off point for the test.

PPV and NPV depend on the prevalence of the disease in the population, and the sensitivity and specificity of the test.

[15] Grimes and Schulz (2002) Uses and abuses of screening tests. The Lancet 359:9, 881-884

SECTION 1: COVERAGE

1a.1 Overall coverage of eligible women

Definition: The number and percentage of women in the target age group (50–64 years) who have had a screening mammogram in the programme.

Target: >70% of eligible women receive a screen within the most recent 24 month period

Table 1a.1: Overall coverage of eligible women aged 50-64 years, 2 years (January 2006 to December 2007)

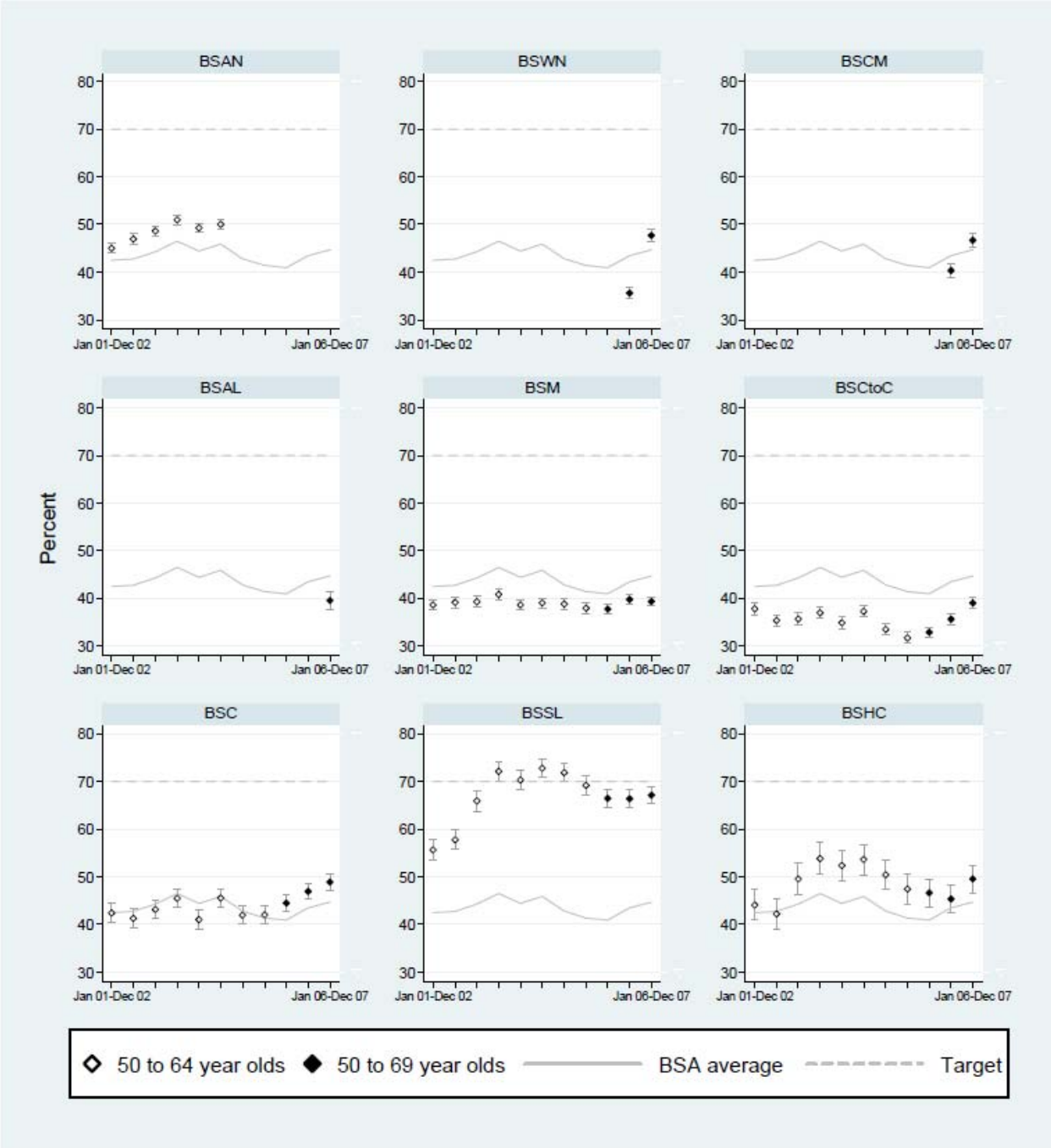
Lead provider	Number screened		Total eligible pop*		Coverage %		Māori/non-Māori Ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori (95% CI)	Non-Māori (95% CI)	
2 years (January 2006 - December 2007)							
BSWN	2,576	29,474	5,360	52,225	48.1 (46.7-49.4)	56.4 (56.0-56.9)	0.85 (0.83-0.87)
BSCM	1,832	16,242	3,900	30,680	47.0 (45.4-48.6)	52.9 (52.4-53.5)	0.89 (0.86-0.92)
BSAL	838	14,706	2,050	30,650	40.9 (38.7-43.0)	48.0 (47.4-48.5)	0.85 (0.81-0.90)
BSM	3,429	28,785	8,930	47,315	38.4 (37.4-39.4)	60.8 (60.4-61.3)	0.63 (0.61-0.65)
BSCtoC	2,630	26,438	6,715	40,625	39.2 (38.0-40.3)	65.1 (64.6-65.5)	0.60 (0.58-0.62)
BSC	1,469	22,791	2,990	35,020	49.1 (47.3-50.9)	65.1 (64.6-65.6)	0.75 (0.72-0.78)
BSSL	1,653	49,447	2,430	61,135	68.0 (66.1-69.9)	80.9 (80.6-81.2)	0.84 (0.82-0.86)
BSHC	519	17,291	1,055	24,300	49.2 (46.1-52.3)	71.2 (70.6-71.7)	0.69 (0.65-0.73)
Total NZ	**14,946**	**205,174**	**33,430**	**321,950**	**44.7 (44.2-45.2)**	**63.7 (63.6-63.9)**	**0.70 (0.69-0.71)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target..

* Eligible population is based on the 2007 projected population

Overall, only 44.7% of eligible Māori women were screened compared to 63.7% of non-Māori women in the January 2006 to December 2007 period. Nationally the target of 70% coverage was not met for either Māori or non-Māori, with only two individual providers meeting this target for non-Māori women (BSSL and BSHC), and no individual providers meeting the target for Māori women although BreastScreen South neared the target with 68% coverage, also achieving one of the highest ratios (0.84), therefore showing less disparity. The largest disparities were seen in BSM and BSCtoC, both with low coverage of Māori (38.4% and 39.2% respectively), screening Māori women at 60% and 63% of the rate of non-Māori women.

Figure 1a1.1: Trends in biennial coverage for Māori



Source: Page et al. 2009. BreastScreen Aotearoa Independent Monitoring Report: Screening and Assessment Report of Women attending BSA (Women screened January 2006 to December 2007). Page 31

Trends in coverage over time

The data presented in Figure 1a1.1 shows Māori coverage rates at ages 50-64 years up to July 2005, then includes 50-69 year olds. There was a decline in Māori coverage rates during the period of age extension, but an upward trend is now emerging. As this report includes data only up to the end of 2007, progress in coverage of Māori women is not reflected in the data. The recent Independent Monitoring Report[16] shows that the upward trend shown in Figure 1a1.1 continued to June 2009 and each individual Lead Provider increased their coverage of Māori women.

[16] Page et al 2010 BreastScreen Aotearoa Independent Monitoring Report: Screening and Assessment Report of Women attending BSA (Women screened July 2007-June 2009)

1a.2 Proportion of screens that are initial and subsequent screens

Table 1a.2: Proportion of screens that are initial or subsequent screens, women 50–64 years, 2 years (January 2006 to December 2007)

Lead provider	Number of initial screens		Number of women screened		% of screens that were initial (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	710	7,035	2,576	29,474	27.6 (25.8-29.3)	23.9 (23.4-24.4)	1.15 (1.08-1.23)
BSCM	603	4,240	1,832	16,242	32.9 (30.8-35.1)	26.1 (25.4-26.8)	1.26 (1.17-1.35)
BSAL	243	3,632	838	14,706	29.0 (25.9-32.2)	24.7 (24.0-25.4)	1.17 (1.05-1.31)
BSM	790	4,058	3,429	28,785	23.0 (21.6-24.5)	14.1 (13.7-14.5)	1.63 (1.52-1.74)
BSCtoC	621	4,099	2,630	26,438	23.6 (22.0-25.3)	15.5 (15.1-15.9)	1.52 (1.41-1.64)
BSC	390	3,670	1,469	22,791	26.5 (24.3-28.9)	16.1 (15.6-16.6)	1.65 (1.51-1.81)
BSSL	237	5,007	1,653	49,447	14.3 (12.7-16.1)	10.1 (9.9-10.4)	1.42 (1.26-1.60)
BSHC	91	2,194	519	17,291	17.5 (14.4-21.1)	12.7 (12.2-13.2)	1.38 (1.14-1.67)
Total NZ	**3,685**	**33,935**	**14,946**	**205,174**	**24.7 (24.0-25.4)**	**16.5 (16.4-16.7)**	**1.49 (1.45-1.53)**

Lead provider	Number of subsequent screens		Number of women screened		% of screens that were subsequent (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	1,866	22,439	2,576	29,474	72.4 (70.7-74.2)	76.1 (75.6-76.6)	0.95 (0.93-0.97)
BSCM	1,229	12,002	1,832	16,242	67.1 (64.9-69.2)	73.9 (73.2-74.6)	0.91 (0.88-0.94)
BSAL	595	11,074	838	14,706	71.0 (67.8-74.1)	75.3 (74.6-76.0)	0.94 (0.90-0.98)
BSM	2,639	24,727	3,429	28,785	77.0 (75.5-78.4)	85.9 (85.5-86.3)	0.90 (0.88-0.92)
BSCtoC	2,009	22,339	2,630	26,438	76.4 (74.7-78.0)	84.5 (84.1-84.9)	0.90 (0.88-0.92)
BSC	1,079	19,121	1,469	22,791	73.5 (71.1-75.7)	83.9 (83.4-84.4)	0.88 (0.85-0.91)
BSSL	1,416	44,440	1,653	49,447	85.7 (83.9-87.3)	89.9 (89.6-90.1)	0.95 (0.93-0.97)
BSHC	428	15,097	519	17,291	82.5 (78.9-85.6)	87.3 (86.8-87.8)	0.94 (0.90-0.98)
Total NZ	**11,261**	**171,239**	**14,946**	**205,174**	**75.3 (74.6-76.0)**	**83.5 (83.3-83.6)**	**0.90 (0.89-0.91)**

A greater proportion of Māori women underwent screening for the first time compared to non-Māori women in this two year time period. Almost 25% of Māori screens were initial, compared to 16.5% for non-Māori (50% more initial screens for Māori women). Conversely, a lower proportion of Māori screens were subsequent screens (75.3% compared to 83.5% for non-Māori). This pattern was consistent across all lead providers.

The higher proportion of initial screens among Māori may partially reflect the difference in age structures between the two populations with a higher proportion entering the programme in the younger age groups, the increasing coverage among Māori women, and the lower rescreening rates compared to non-Māori.

1a.3 Percentage of women screened by type of screening unit

Table 1a.3: Percentage of women screened by type of screening unit, 50–64 years, 2 years (January 2006 to December 2007)

Lead provider	Number screened in fixed unit		Total number screened		% screened in fixed unit (95% CI)				Māori/non-Māori ratio (95% CI)	
	Māori	Non-Māori	Māori	Non-Māori	Māori		Non-Māori			
BSWN	1,636	26,121	2,576	29,474	63.5	(61.6-65.4)	88.6	(88.3-89.0)	0.72	(0.70-0.74)
BSCM	1,510	13,974	1,832	16,242	82.4	(80.6-84.1)	86.0	(85.5-86.6)	0.96	(0.94-0.98)
BSAL	675	12,732	838	14,706	80.5	(77.7-83.2)	86.6	(86.0-87.1)	0.93	(0.90-0.96)
BSM	2,020	20,540	3,429	28,785	58.9	(57.2-60.6)	71.4	(70.8-71.9)	0.83	(0.81-0.85)
BSCtoC	1,980	23,206	2,630	26,438	75.3	(73.6-76.9)	87.8	(87.4-88.2)	0.86	(0.84-0.88)
BSC	1,030	17,617	1,469	22,791	70.1	(67.7-72.4)	77.3	(76.7-77.8)	0.91	(0.88-0.94)
BSSL	1,277	44,493	1,653	49,447	77.3	(75.2-79.3)	90.0	(89.7-90.2)	0.86	(0.84-0.88)
BSHC	345	11,417	519	17,291	66.5	(62.2-70.5)	66.0	(65.3-66.7)	1.01	(0.95-1.07)
Total NZ	**10,473**	**170,100**	**14,946**	**205,174**	**70.1**	**(69.3-70.8)**	**82.9**	**(82.7-83.1)**	**0.85**	**(0.84-0.86)**
Lead provider	**Number screened in mobile unit**		**Total number screened**		**% screened in mobile unit (95% CI)**				**Māori/non-Māori ratio (95% CI)**	
	Māori	**Non-Māori**	**Māori**	**Non-Māori**	**Māori**		**Non-Māori**			
BSWN	940	3,353	2,576	29,474	36.5	(34.6-38.4)	11.4	(11.0-11.7)	3.21	(3.02-3.41)
BSCM	322	2,268	1,832	16,242	17.6	(15.9-19.4)	14.0	(13.4-14.5)	1.26	(1.13-1.40)
BSAL	163	1,974	838	14,706	19.5	(16.8-22.3)	13.4	(12.9-14.0)	1.45	(1.26-1.67)
BSM	1,409	8,245	3,429	28,785	41.1	(39.4-42.8)	28.6	(28.1-29.2)	1.43	(1.37-1.49)
BSCtoC	650	3,232	2,630	26,438	24.7	(23.1-26.4)	12.2	(11.8-12.6)	2.02	(1.88-2.18)
BSC	439	5,174	1,469	22,791	29.9	(27.6-32.3)	22.7	(22.2-23.3)	1.32	(1.22-1.43)
BSSL	376	4,954	1,653	49,447	22.7	(20.7-24.8)	10.0	(9.8-10.3)	2.27	(2.07-2.49)
BSHC	174	5,874	519	17,291	33.5	(29.5-37.8)	34.0	(33.3-34.7)	0.99	(0.88-1.12)
Total NZ	**4,473**	**35,074**	**14,946**	**205,174**	**29.9**	**(29.2-30.7)**	**17.1**	**(16.9-17.3)**	**1.75**	**(1.70-1.80)**

Overall, the majority of all women were screened in fixed units. Compared to non-Māori women, a higher proportion of Māori women screened were screened at a mobile site (almost 30% of Māori women screened compared to 17% of non-Māori). BSM had the highest proportion of Māori women accessing mobile units (41%), BSWN and BSHC also had relatively high proportions (36.5% and 33.5% respectively).

1a.4 Age-specific coverage, women aged 50–64 years

Table 1a.4: Coverage by age group, 2 years (January 2006 to December 2007)

Lead provider	Number of women screened in last 2 years		Eligible population		% coverage in last 2 years (95% CI)				Māori/non-Māori ratio (95% CI)	
	Māori	Non-Māori	Māori	Non-Māori	Māori		Non-Māori			
Age 50-54 years										
BSWN	998	10,206	2,320	19,445	43.0	(41.0- 45.1)	52.5	(51.8-53.2)	0.82	(0.78-0.86)
BSCM	759	5,769	1,730	11,545	43.9	(41.5-46.2)	50.0	(49.1-50.9)	0.88	(0.83-0.93)
BSAL	347	5,397	920	12,370	37.7	(34.6-40.9)	43.6	(42.8-44.5)	0.86	(0.79-0.94)
BSM	1,327	9,472	3,980	17,420	33.3	(31.9-34.8)	54.4	(53.6-55.1)	0.61	(0.58-0.64)
BSCtoC	962	9,089	2,925	15,040	32.9	(31.2-34.6)	60.4	(59.6-61.2)	0.54	(0.51-0.57)
BSC	591	7,982	1,295	13,230	45.6	(42.9-48.4)	60.3	(59.5-61.2)	0.76	(0.72-0.81)
BSSL	675	18,188	1,030	22,815	65.5	(62.5-68.4)	79.7	(79.2-80.2)	0.82	(0.78-0.86)
BSHC	207	6,245	455	9,080	45.5	(40.9-50.2)	68.8	(67.8-69.7)	0.66	(0.60-0.73)
Total NZ	**5,866**	**72,348**	**14,655**	**120,945**	**40.0**	**(39.2-40.8)**	**59.8**	**(59.5-60.1)**	**0.67**	**(0.66-0.68)**
Age 55-59 years										
BSWN	890	10,372	1,780	17,875	50.0	(47.7–52.3)	58.0	(57.3–58.8)	0.86	(0.82-0.90)
BSCM	643	5,606	1,300	10,520	49.5	(46.7–52.2)	53.3	(52.3–54.2)	0.93	(0.88-0.99)
BSAL	300	5,208	630	10,440	47.6	(43.7–51.6)	49.9	(48.9–50.8)	0.95	(0.87-1.03)
BSM	1,185	10,244	2,870	16,075	41.3	(39.5–43.1)	63.7	(63.0–64.5)	0.65	(0.62-0.68)
BSCtoC	977	9,412	2,205	13,950	44.3	(42.2–46.4)	67.5	(66.7–68.2)	0.66	(0.63-0.69)
BSC	543	8,144	1,045	12,105	52.0	(48.9–55.0)	67.3	(66.4–68.1)	0.77	(0.73-0.82)
BSSL	578	17,201	860	21,185	67.2	(64.0–70.3)	81.2	(80.7–81.7)	0.83	(0.79-0.87)
BSHC	180	5,967	360	8,405	50.0	(44.7–55.3)	71.0	(70.0–72.0)	0.70	(0.63-0.78)
Total NZ	**5,296**	**72,154**	**11,050**	**110,555**	**47.9**	**(47.0–48.9)**	**65.3**	**(65.0–65.5)**	**0.73**	**(0.72-0.74)**
Age 60-64 years										
BSWN	688	8,896	1,260	14,905	54.6	(51.8–57.4)	59.7	(58.9–60.5)	0.91	(0.86-0.96)
BSCM	430	4,867	870	8,615	49.4	(46.1–52.8)	56.5	(55.4–57.5)	0.87	(0.81-0.93)
BSAL	191	4,101	500	7,840	38.2	(33.9–42.6)	52.3	(51.2–53.4)	0.73	(0.65-0.82)
BSM	917	9,069	2,080	13,820	44.1	(41.9–46.3)	65.6	(64.8–66.4)	0.67	(0.64-0.70)
BSCtoC	691	7,937	1,585	11,635	43.6	(41.1–46.1)	68.2	(67.4–69.1)	0.64	(0.60-0.68)
BSC	335	6,665	650	9,685	51.5	(47.6–55.4)	68.8	(67.9–69.7)	0.75	(0.70-0.81)
BSSL	400	14,058	540	17,135	74.1	(70.2–77.7)	82.0	(81.5–82.6)	0.90	(0.86-0.95)
BSHC	132	5,079	240	6,815	55.0	(48.5–61.4)	74.5	(73.5–75.6)	0.74	(0.66-0.83)
Total NZ	**3,784**	**60,672**	**7,725**	**90,450**	**49.0**	**(47.9–50.1)**	**67.1**	**(66.8–67.4)**	**0.73**	**(0.71-0.75)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

* Eligible population is based on the 2007 projected population

Māori coverage rates remain below 50% in each age group overall, with the lowest coverage in the 50-54 year age group. Most individual Lead Providers did not meet the target coverage for Māori except for BreastScreen South Limited which exceeded the target for Māori women aged 60-64 years and had coverage rates over 65% in the younger age groups. The disparities between Māori and non-Māori women remain significant.

1b Routine re-screening

Description: The proportion of enrolled eligible women who are re-screened. This measures the acceptability of the programme.

Target:

>85% of women who are eligible for rescreen are re-screened within 27 months
>75% of women who return for a screen are re-screened between 20 to 24 months of their previous screen.

Table 1b.1: Percentage of women aged 50–64 years, eligible for re-screen who are re-screened within 27 months, 2 years (January 2006 to December 2007)

	Māori			Non-Māori			
Lead provider	Women rescreened within 27 months of previous screen	Women eligible for re-screen	% of eligible women rescreened within 27 months (95% CI)	Women rescreened within 27 months of previous screen	Women eligible for re-screen	% of eligible women rescreened within 27 months (95% CI)	Māori/non-Māori ratio (95% CI)
2 years (previous screen 1/10/2003 to 1/10/2005)							
BSWN, BSAL, BSCM	2,512	4,100	61.3 (59.6-62.6)	36,285	47,732	76.0 (75.6-76.4)	0.80(0.78-0.82)
BSM	1,919	2,747	69.9 (68.1-71.6)	19,760	24,262	81.4 (80.9-81.9)	0.86(0.82-0.90)
BSCtoC	1,564	1,998	78.3 (76.4-80.1)	18,260	21,555	84.7 (84.2-85.2)	0.92(0.88-0.97)
BSC	862	1,071	80.5 (78.0-82.8)	16,137	18,380	87.8 (87.3-88.3)	0.92(0.86-0.98)
BSSL	1,232	1,432	86.0 (84.1-87.7)	39,193	43,041	91.0 (90.7-91.2)	0.95(0.89-1.00)
BSHC	342	441	77.6 (73.4-81.4)	12,501	14,272	87.6 (87.0-88.1)	0.89(0.80-0.99)
Total	**8,431**	**11,787**	**71.5 (70.7-72.3)**	**142,112**	**169,242**	**84.0 (83.8-84.1)**	**0.85(0.84-0.87)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

Due to the re-configuration of BSAN into three providers during the reporting period, re-screen data for BSWN, BSCM and BSAL does not cover a full 24-month screening period. Therefore in the table above, re-screen rates for BSWN, BSCM and BSAL are aggregated to represent those women originally screened by BSAN who returned for a re-screen by either BSWN, BSCM or BSAL.

Nationally, the target of 85% of eligible women rescreened within 27 months was not met for either Māori (71.5%) or non-Māori (84%), however the rate for non-Māori was very close to the target. BSSL was the only provider to meet the target for Māori, screening 86% of eligible women within 27 months of their first screen.

Table 1b.2: Percentage of women aged 50–64 years, who return for a screen who are re-screened within 20-24 months, 2 years (January 2006 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Number of women rescreened within 20 to 24 months of previous screen	Number of women eligible for re-screen	% of eligible women rescreened within 20 to 24 months (95% CI)	Number of women rescreened within 20 to 24 months of previous screen	Number of women eligible for re-screen	% of eligible women rescreened within 20 to 24 months (95% CI)	
Last 2 years (1/10/2003 to 1/10/2005)							
BSWN, BSCM, BSAL	2,019	2,512	80.4(78.8-81.9)	29,312	36,285	80.8(80.4-81.2)	0.99(0.97-1.01)
BSM	1,595	1,919	83.1(81.3-84.7)	16,397	19,760	83.1(82.4-83.5)	1.00(0.98-1.02)
BSCtoC	1,154	1,564	73.8(71.5-76.0)	13,258	18,266	72.6(71.9-73.2)	1.02(0.99-1.05)
BSC	696	862	80.7(77.9-83.3)	13,469	16,137	83.5(82.9-84.0)	0.97(0.94-1.00)
BSSL	1,125	1,232	91.3(89.6-92.8)	36,408	39,163	93.0(92.7-93.2)	0.98(0.96-1.00)
BSHC	183	342	53.5(48.1-58.9)	6,754	12,501	54.0(53.2-54.9)	0.99(0.90-1.09)
Total BSA	**6,774**	**8,431**	**80.3(79.5-81.2)**	**115,598**	**142,112**	**81.3(81.1-81.5)**	**0.99(0.98-1.00)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

Due to the re-configuration of BSAN into three providers during the reporting period, re-screen data for BSWN, BSCM and BSAL does not cover a full 24-month screening period. Therefore in the table above, re-screen rates for BSWN, BSCM and BSAL are aggregated to represent those women originally screened by BSAN who returned for a re-screen by either BSWN, BSCM or BSAL.

Of women who were rescreened within 27 months, the target of 75% screened within 20-24 months was met for both Māori and non-Māori women overall. There was no significant difference between the overall rates for Māori and non-Māori, indicating no apparent disparity in these rates.

SECTION 2: PROVISION OF HIGH QUALITY SCREENING AND ASSESSMENT

2a Screened women who have no more than four films taken

Description: The percentage of women screened who have no more than four films taken.
Target: >80% of women screened have four or less films taken.

Table 2a.1: Percentage of women aged 50–64 years having 4 films or fewer by type of screening unit, 2 years (January 2006 to December 2007)

	Māori			Non-Māori			
Lead provider	Women having 4 films or fewer	Number of women screened	% of women screened (95% CI)	Women having 4 films or fewer	Number of women screened	% of women screened (95% CI)	Māori/non-Māori ratio (95% CI)
Fixed Unit							
BSWN	1,108	1,636	67.7(65.4-70.0)	21,711	26,121	83.1(82.7-83.6)	0.81(0.78-0.84)
BSCM	1,204	1,510	79.7(77.6-81.7)	12,786	13,974	91.5(91.0-92.0)	0.87(0.85-0.89)
BSAL	509	675	75.4(72.0-78.6)	10,894	12,732	85.6(84.9-86.2)	0.88(0.84-0.92)
BSM	1,756	2,020	86.9(85.4-88.4)	18,849	20,540	91.8(91.4-92.1)	0.95(0.93-0.97)
BSCtoC	1,589	1,980	80.3(78.4-82.0)	21,460	23,206	92.5(92.1-92.8)	0.87(0.85-0.89)
BSC	878	1,030	85.2(82.9-87.4)	16,703	17,617	94.8(94.5-95.1)	0.90(0.88-0.92)
BSSL	1,127	1,277	88.3(86.4-90.0)	41,155	44,493	92.5(92.2-92.7)	0.95(0.93-0.97)
BSHC	269	345	78.0(73.2-82.2)	9,828	11,417	86.1(85.4-86.7)	0.91(0.86-0.96)
Total	**8,440**	**10,473**	**80.6(79.8-81.3)**	**153,386**	**170,100**	**90.2(90.0-90.3)**	**0.89(0.88-0.90)**
Mobile unit							
BSWN	665	940	70.7(67.7-73.6)	2,745	3,353	81.9(80.5-83.2)	0.86(0.82-0.90)
BSCM	230	322	71.4(66.2-76.3)	1,982	2,268	87.4(86.0-88.7)	0.82(0.76-0.88)
BSAL	117	163	71.8(64.2-78.5)	1,561	1,974	79.1(77.2-80.9)	0.91(0.82-1.00)
BSM	1,020	1,409	72.4(70.0-74.7)	7,213	8,245	87.5(86.7-88.2)	0.83(0.80-0.86)
BSCtoC	403	650	62.0(58.1-65.7)	2,767	3,232	85.6(84.4-86.8)	0.72(0.68-0.77)
BSC	360	439	82.0(78.1-85.5)	4,615	5,174	89.2(88.3-90.0)	0.92(0.88-0.96)
BSSL	311	376	82.7(78.5-86.4)	4,785	4,954	96.6(96.0-97.1)	0.86(0.82-0.90)
BSHC	156	174	89.7(84.1-93.8)	5,476	5,874	93.2(92.6-93.9)	0.96(0.91-1.01)
Total	**3,262**	**4,473**	**72.9(71.6-74.2)**	**31,144**	**35,074**	**88.8(88.5-89.1)**	**0.82(0.81-0.84)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

This indicator reflects the need to achieve a balance between minimising exposure to radiation and obtaining sufficient films to get a clear picture.

During the period 2006–07, the desirable target of more than 80% of women requiring 4 films or fewer was not met for Māori in mobile units (72.9%) although three providers did meet the target. Most providers met the target for Māori in fixed units (80.6%). The target was easily met for non-Māori (90.2% in fixed units, 88.8% in mobile). A disparity exists between Māori and non-Māori women in both types of unit but the disparity was greater in mobile units.

2b Technical recall rate

Definition: The number of women who have to return to a screening unit (either Fixed or Mobile) for further films to complete their screening episode, expressed as a percentage of the number screened.

Target:

Fixed <0.5%
Mobile <3%

Table 2b.1: Women aged 50–64 years having technical recall as a percentage of women screened, by type of screening unit, 2 years (January 2006 to December 2007)

	Māori			Non-Māori			
Lead provider	Women having technical recall	Number of women screened	% of women screened (95% CI)	Women having technical recall	Number of women screened	% of women screened (95% CI)	Māori/non-Māori ratio (95% CI)
Fixed Unit							
BSWN	7	1,636	0.4(0.2-0.9)	39	26,121	0.1(0.1-0.2)	2.87(1.29-6.41)
BSCM	2	1,510	0.1(0.0-0.5)	15	13,974	0.1(0.1-0.2)	1.23(0.28-5.37)
BSAL	1	675	0.1(0.0-0.8)	40	12,732	0.3(0.2-0.4)	0.47(0.06-3.41)
BSM	2	2,020	0.1(0.0-0.4)	34	20,540	0.2(0.1-0.2)	0.60(0.14-2.50)
BSCtoC	11	1,980	0.6(0.3-1.0)	57	23,206	0.2(0.2-0.3)	2.26(1.19-4.30)
BSC	5	1,030	0.5(0.2-1.1)	74	17,617	0.4(0.3-0.5)	1.16(0.47-2.86)
BSSL	0	1,277	0.0(0.0-0.2)	85	44,493	0.2(0.2-0.2)	0.00 *
BSHC	1	345	0.3(0.0-1.6)	29	11,417	0.3(0.2-0.4)	1.14(0.16-8.34)
Total BSA	**29**	**10,473**	**0.3(0.2-0.4)**	**373**	**170,100**	**0.2(0.2-0.2)**	**1.26(0.86-1.84)**
Mobile unit							
BSWN	51	940	5.4(4.1-7.1)	195	3,353	5.8(5.0-6.7)	0.93(0.69-1.25)
BSCM	16	322	5.0(2.9-7.9)	59	2,268	2.6(2.0-3.3)	1.91(1.11-3.28)
BSAL	11	163	6.7(3.4-11.8)	89	1,974	4.5(3.6-5.5)	1.50(0.82-2.75)
BSM	58	1,409	4.1(3.1-5.3)	260	8,245	3.2(2.8-3.6)	1.31(0.99-1.73)
BSCtoC	21	650	3.2(2.0-4.9)	119	3,232	3.7(3.1-4.4)	0.88(0.56-1.39)
BSC	33	439	7.5(5.2-10.4)	246	5,174	4.8(4.2-5.4)	1.58(1.11-2.24)
BSSL	10	376	2.7(1.3-4.8)	91	4,954	1.8(1.5-2.3)	1.45(0.76-2.76)
BSHC	8	174	4.6(2.0-8.9)	134	5,874	2.3(1.9-2.7)	2.02(1.01-4.06)
Total BSA	**208**	**4,473**	**4.7(4.1-5.3)**	**1,193**	**35,074**	**3.4(3.2-3.6)**	**1.37(1.19-1.58)**

Ratios above one are unfavourable to Māori. Shaded boxes show confidence interval excludes target. *CI not estimable

Fixed units: Overall the target of less than 0.5% of women requiring recall to a sceening unit for further films to complete their screening episode was met for both Māori (0.3%) and non-Māori (0.2%). Almost all individual providers met the target.

Mobile units: The target of less than 3% was not met for either Māori (4.7%) or non-Māori (3.4%), with the Māori proportion 37% higher than the non-Māori proportion.

2c Technical reject rate

Description:

The number of films rejected as a percentage of the number of films taken, calculated separately for women who are screened in a fixed unit or a mobile site.

Target:

Fixed: <3%
Mobile: <3%

Table 2c.1: Rejected films as a percentage of total films taken among women aged 50–64 years, 2 years (January 2006 to December 2007)

	Māori			Non-Māori			
Lead provider	Total films rejected	Total films taken	% of films (95% CI)	Total films rejected	Total films taken	% of films (95% CI)	Māori/non-Māori ratio (95% CI)
Fixed Unit							
BSWN	87	7,619	1.1(0.9-1.4)	1,328	115,621	1.1(1.1-1.2)	0.99(0.80-1.23)
BSCM	86	7,059	1.2(1.0-1.5)	835	62,538	1.3(1.2-1.4)	0.91(0.73-1.13)
BSAL	50	3,150	1.6(1.2-2.1)	548	56,103	1.0(0.9-1.1)	1.63(1.22-2.17)
BSM	61	8,577	0.7(0.5-0.9)	639	85,483	0.7(0.7-0.8)	0.95(0.73-1.23)
BSCtoC	98	8,724	1.1(0.9-1.4)	1,013	98,416	1.0(1.0-1.1)	1.09(0.89-1.34)
BSC	56	4,636	1.2(0.9-1.6)	842	77,745	1.1(1.0-1.2)	1.12(0.86-1.47)
BSSL	46	5,576	0.8(0.6-1.1)	1,868	191,510	1.0(0.9-1.0)	0.85(0.64-1.14)
BSHC	19	1,562	1.2(0.7-1.9)	771	50,866	1.5(1.4-1.6)	0.80(0.51-1.26)
Total	**503**	**46,903**	**1.1(1.0-1.2)**	**7,844**	**738,282**	**1.1(1.0-1.1)**	**1.01(0.92-1.10)**
Mobile unit							
BSWN	73	4,635	1.6(1.2-2.0)	274	14,822	1.8(1.6-2.1)	0.85(0.66-1.10)
BSCM	9	1,444	0.6(0.3-1.2)	44	9,541	0.5(0.3-0.6)	1.35(0.66-2.76)
BSAL	3	729	0.4(0.1-1.2)	44	8,591	0.5(0.4-0.7)	0.80(0.25-2.57)
BSM	26	6,309	0.4(0.3-0.6)	133	34,567	0.4(0.3-0.5)	1.07(0.70-1.63)
BSCtoC	31	3,064	1.0(0.7-1.4)	93	13,680	0.7(0.5-0.8)	1.49(0.99-2.23)
BSC	5	1,885	0.3(0.1-0.6)	71	21,543	0.3(0.3-0.4)	0.80(0.32-1.98)
BSSL	17	1,649	1.0(0.6-1.6)	105	21,824	0.5(0.4-0.6)	2.14(1.29-3.56)
BSHC	5	725	0.7(0.2-1.6)	45	24,321	0.2(0.1-0.2)	3.73(1.48-9.37)
Total	**169**	**20,440**	**0.8(0.7-1.0)**	**809**	**148,889**	**0.5(0.5-0.6)**	**1.52(1.29-1.79)**

Ratios above one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

All lead providers met the target of less than 3% rejected films during the last two years in both mobile and fixed units.

2d Assessment rate

Description:

Number of women referred to assessment as a percentage of all women screened.

Target:

Initial (prevalent) screen: expected value <10% and the desired value is <7%
Subsequent (incident) screen: expected value <5% and the desired value is <4%

Table 2d.1: Referral to assessment as a percentage of women screened, ages 50–64 years, 2 years (January 2006 to December 2007)

	Māori			Non-Māori			
Lead provider	Referred to assess-ment	No. of women screened	% of women screened referred to assessment (95% CI)	Referred to assess-ment	No. of women screened	% of women screened referred to assessment (95% CI)	Māori/non-Māori ratio (95% CI)
Initial							
BSWN	79	710	11.1 (8.9-13.7)	605	7,035	8.6(8.0-9.3)	1.29(1.03-1.61)
BSCM	70	603	11.6 (9.2-14.4)	429	4,240	10.1(9.2-11.1)	1.15(0.91-1.46)
BSAL	25	243	10.3 (6.8-14.8)	288	3,632	7.9(7.1-8.9)	1.30(0.88-1.92)
BSM	98	790	12.4 (10.2-14.9)	382	4,058	9.4(8.5-10.4)	1.32(1.07-1.63)
BSCtoC	73	621	11.8 (9.3-14.6)	309	4,099	7.5(6.7-8.4)	1.56(1.23-1.98)
BSC	40	390	10.3 (7.4-13.7)	316	3,670	8.6(7.7-9.6)	1.19(0.87-1.63)
BSSL	27	237	11.4 (7.6-16.1)	349	5,007	7.0(6.3-7.7)	1.63(1.13-2.36)
BSHC	7	91	7.7 (3.1-15.2)	240	2,194	10.9(9.7-12.3)	0.70(0.34-1.44)
Total	**419**	**3,685**	**11.4 (10.4-12.4)**	**2,918**	**33,935**	**8.6(8.3-8.9)**	**1.32(1.20-1.45)**
Subsequent							
BSWN	80	1,866	4.3 (3.4-5.3)	755	22,439	3.4(3.1-3.6)	1.27(1.01-1.59)
BSCM	44	1,229	3.6 (2.6-4.8)	425	12,002	3.5(3.2-3.9)	1.01(0.74-1.37)
BSAL	24	595	4.0 (2.6-5.9)	346	11,074	3.1(2.8-3.5)	1.29(0.86-1.93)
BSM	106	2,639	4.0 (3.3-4.8)	899	24,727	3.6(3.4-3.9)	1.10(0.90-1.34)
BSCtoC	49	2,009	2.4 (1.8-3.2)	488	22,339	2.2(2.0-2.4)	1.12(0.84-1.50)
BSC	39	1,079	3.6 (2.6-4.9)	657	19,121	3.4(3.2-3.7)	1.05(0.76-1.44)
BSSL	45	1,416	3.2 (2.3-4.2)	1,137	44,440	2.6(2.4-2.7)	1.24(0.92-1.66)
BSHC	8	428	1.9 (0.8-3.6)	428	15,097	2.8(2.6-3.1)	0.66(0.33-1.32)
Total	**395**	**11,261**	**3.5 (3.2-3.9)**	**5,135**	**171,239**	**3.0(2.9-3.1)**	**1.17(1.06-1.29)**

Ratios above one are unfavourable to Māori. Rates that exceeded the expected value within the confidence interval have been shaded.

Initial screens: In the two year period January 2006 to December 2007, 11.4% of Māori women undergoing initial screens were referred for assessment, a greater proportion than non-Māori (8.6%) and higher than the expected value of less than 10%. Most individual providers also exceeded this value for Māori (except for BSHC) although the confidence interval included the target range for most. For non-Māori, most providers fell within the expected range (apart from BSHC and BSCM), although none below the desired value of 7%. Overall, 32% more Māori than non-Māori were referred to assessment following their first mammographic screen in the BSA programme.

Subsequent screens: Overall, referral rates resulting from subsequent screens were below the expected value of <5%, and the desired value of <4% for both Māori (3.5%) and non-Māori (3.0%).

2e False positive rate

Description:

Measures the proportion of women who are recalled to assessment, but after assessment are found not to have cancer.

Target:

Initial (prevalent) screen: expected value <9%, desired target <6%
Subsequent (incident) screen: expected value <4%, desired target <3%

Table 2e.1: Number with false positive results as a percentage of women screened, 2 years (January 2006 to December 2007)

	Māori			Non-Māori			
Lead provider	No. of false positives	No. of women screened	% of women screened (95% CI)	No. of false positives	No. of women screened	% of women screened (95% CI)	Māori/non-Māori ratio (95% CI)
Initial							
BSWN	65	710	9.2(7.1-11.5)	524	7,035	7.4(6.8-8.1)	1.23(0.96-1.57)
BSCM	58	603	9.6(7.4-12.3)	386	4,240	9.1(8.3-10.0)	1.06(0.82-1.38)
BSAL	19	243	7.8(4.8-11.9)	241	3,632	6.6(5.8-7.5)	1.18(0.75-1.85)
BSM	86	790	10.9(8.8-13.3)	347	4,058	8.6(7.7-9.5)	1.27(1.02-1.59)
BSCtoC	63	621	10.1(7.9-12.8)	271	4,099	6.6(5.9-7.4)	1.53(1.18-1.99)
BSC	33	390	8.5(5.9-11.7)	295	3,670	8.0(7.2-9.0)	1.05(0.74-1.48)
BSSL	20	237	8.4(5.2-12.7)	297	5,007	5.9(5.3-6.6)	1.42(0.92-2.19)
BSHC	6	91	6.6(2.5-13.8)	222	2,194	10.1(8.9-11.5)	0.65(0.30-1.42)
Total	**350**	**3,685**	**9.5(8.6-10.5)**	**2,583**	**33,935**	**7.6(7.3-7.9)**	**1.25(1.12-1.39)**
Subsequent							
BSWN	61	1,866	3.3(2.5-4.2)	602	22,439	2.7(2.5-2.9)	1.22(0.94-1.58)
BSCM	37	1,229	3.0(2.1-4.1)	362	12,002	3.0(2.7-3.3)	1.00(0.72-1.40)
BSAL	18	595	3.0(1.8-4.7)	269	11,074	2.4(2.2-2.7)	1.25(0.78-2.00)
BSM	88	2,639	3.3(2.7-4.1)	766	24,727	3.1(2.9-3.3)	1.08(0.87-1.34)
BSCtoC	30	2,009	1.5(1.0-2.1)	372	22,339	1.7(1.5-1.8)	0.90(0.62-1.30)
BSC	27	1,079	2.5(1.7-3.6)	558	19,121	2.9(2.7-3.2)	0.86(0.59-1.26)
BSSL	32	1,416	2.3(1.6-3.2)	929	44,440	2.1(2.0-2.2)	1.08(0.76-1.53)
BSHC	8	428	1.9(0.8-3.6)	358	15,097	2.4(2.1-2.6)	0.79(0.39-1.58)
Total	**301**	**11,261**	**2.7(2.4-3.0)**	**4,216**	**171,239**	**2.5(2.4-2.5)**	**1.09(0.97-1.22)**

Ratios above one are unfavourable to Māori.

Initial screens: The false positive rate for Māori women having initial screens (9.5%) was close to the target of 9%. However, Māori women were 25% more likely to have a false positive result than non-Māori women, for which the overall rate of 7.6% fell within the target.

Subsequent screens: For subsequent screens, all providers achieved proportions below the expected target of 4.0% for both Māori and non-Māori, with no disparity between Māori and non-Māori women.

2f Positive predictive value of screening mammogram

Description:

The proportion of women screened positive who are ultimately diagnosed as having cancer.

Target:

The number with diagnosed cancer as a percentage of the number referred to assessment ≥ 9%

Table 2f.1: Cancers as a percentage of referrals to assessment, 2 years (January 2006 to December 2007)

	Māori			Non-Māori			
Lead provider	No. of cancers	No. of referrals	% of referrals that were cancers (95% CI)	No. of cancers	No. of referrals	% of referrals that were cancers (95% CI)	Māori/non-Māori ratio (95% CI)
Initial							
BSWN	9	79	11.4(5.3-20.5)	62	605	10.2(7.9-12.9)	1.11(0.57-2.14)
BSCM	11	70	15.7(8.1-26.4)	32	429	7.5(5.2-10.4)	2.11(1.12-3.99)
BSAL	4	25	16.0(4.5-36.1)	27	288	9.4(6.3-13.3)	1.71(0.65-4.50)
BSM	9	98	9.2(4.3-16.7)	27	382	7.1(4.7-10.1)	1.30(0.63-2.67)
BSCtoC	10	73	13.7(6.8-23.8)	26	309	8.4(5.6-12.1)	1.63(0.82-3.23)
BSC	7	40	17.5(7.3-32.8)	21	316	6.6(4.2-10.0)	2.63(1.19-5.79)
BSSL	7	27	25.9(11.1-46.3)	51	349	14.6(11.1-18.8)	1.77(0.89-3.52)
BSHC	0	7	0.0(0.0-34.8)	12	240	5.0(2.6-8.6)	0.00 *
Total	**57**	**419**	**13.6(10.5-17.3)**	**258**	**2,918**	**8.8(7.8-9.9)**	**1.54(1.18-2.01)**
Subsequent							
BSWN	15	80	18.8(10.9-29.0)	127	755	16.8(14.2-19.7)	1.11(0.68-1.80)
BSCM	5	44	11.4(3.8-24.6)	58	425	13.6(10.5-17.3)	0.83(0.35-1.96)
BSAL	5	24	20.8(7.1-42.2)	57	346	16.5(12.7-20.8)	1.26(0.56-2.85)
BSM	16	106	15.1(8.9-23.4)	121	899	13.5(11.3-15.9)	1.12(0.69-1.81)
BSCtoC	15	49	30.6(18.3-45.4)	107	488	21.9(18.3-25.9)	1.40(0.89-2.20)
BSC	12	39	30.8(17.0-47.6)	91	657	13.9(11.3-16.7)	2.22(1.34-3.69)
BSSL	13	45	28.9(16.4-44.3)	204	1,137	17.9(15.8-20.3)	1.61(1.00-2.59)
BSHC	0	8	0.0(0.0-31.2)	61	428	14.3(11.1-17.9)	0.00 *
Total	**81**	**395**	**20.5(16.6-24.8)**	**826**	**5,135**	**16.1(15.1-17.1)**	**1.27(1.04-1.56)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target. *CI not estimable

Initial screens: Overall, 54% more Māori were diagnosed with cancer following a positive screen compared to non-Māori. The Māori rate of 13.6% was well in excess of the 9% target, whereas the non-Māori rate was very close at 8.8%.

Subsequent screens: Overall the proportion of cancers diagnosed following a positive screen was higher in subsequent screens than in initial screens for both Māori (20.5%) and non-Māori (16.1%). Māori women were 27% more likely to have cancers diagnosed than non-Māori women who screened positive.

The higher detection rate for Māori is likely to indicate a higher background cancer incidence.

2g Benign biopsy weight

Description:

Measures the weight of the open biopsy specimen presented to the pathologist.

Target:

>90% of open biopsies, which prove to be benign, should weigh <30g.

Table 2g.1: Benign open biopsies weighing <30g as a percent of all benign open biopsies, 7 years (January 2001 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Number of benign open biopsies <30g	Total benign open biopsies	% of Benign Open Biopsies <30g (95% CI))	Number of benign open biopsies <30g	Total benign open biopsies	% of Benign Open Biopsies <30g (95% CI)	
BSWN	4	5	80.0 (28.4-99.5)	24	30	80.0 (61.4-92.3)	1.00(0.62-1.61)
BSCM	4	4	100.0 (47.3-100)	11	14	78.6 (49.2-95.3)	1.27(0.97-1.67)
BSAL	15	19	78.9 (54.4-93.9)	212	260	81.5 (76.3-86.1)	0.97(0.76-1.23)
BSM	8	11	72.7 (39.0-94.0)	86	111	77.5 (68.6-84.9)	0.94(0.65-1.37)
BSCtoC	4	11	36.4 (10.9-69.2)	13	54	24.1 (13.5-37.6)	1.51(0.61-3.77)
BSC	5	6	83.3 (35.9-99.6)	77	88	87.5 (78.7-93.6)	0.95(0.66-1.37)
BSSL	6	6	100.0 (60.7-100)	90	138	65.2 (56.6-73.1)	1.53(1.35-1.73)
BSHC	3	4	75.0 (19.4-99.4)	75	91	82.4 (73.0-89.6)	0.91(0.51-1.62)
Total	**49**	**66**	**74.2 (62.0-84.2)**	**588**	**786**	**74.8 (71.6-77.8)**	**0.99(0.85-1.15)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

This indicator is used to monitor satisfactory cosmetic outcomes in women who have a benign biopsy result. It is considered a measure of surgical skill and the skill of the radiologist in putting the hookwire guide in the correct location. However, it is recognised that women may choose to have benign lesions removed, which would result in a higher biopsy weight.

In the two year period from January 2006 to December 2007, the target of more than 90% benign biopsies weighing less than 30g was not met for either Māori or non-Māori, with only BSCM and BSSL achieving a rate of 100%. Rates were similar between the two groups.

Table 2g.2: Distribution of open biopsies by weight, 7 years (January 2001 to December 2007)

Lead Provider	Benign OB <30g		Benign OB 30-49g		Benign OB 50-69g		Benign OB ≥70 g		Unknown Benign OB Weight	
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori
BSWN*	80.0%	80.0%	20.0%	13.3%	0.0%	3.3%	0.0%	0.0%	0.0%	3.3%
BSCM*	100.0%	78.6%	0.0%	14.3%	0.0%	7.1%	0.0%	0.0%	0.0%	0.0%
BSAN/BSAL	78.9%	81.5%	21.1%	15.4%	0.0%	2.7%	0.0%	0.4%	0.0%	0.0%
BSM	72.7%	77.5%	18.2%	9.0%	0.0%	1.8%	0.0%	7.2%	9.1%	4.5%
BSCtoC	36.4%	24.1%	0.0%	14.8%	0.0%	3.7%	0.0%	3.7%	63.6%	53.7%
BSC	83.3%	87.5%	16.7%	9.1%	0.0%	1.1%	0.0%	1.1%	0.0%	1.1%
BSS	100.0%	65.2%	0.0%	22.5%	0.0%	7.2%	0.0%	5.1%	0.0%	0.0%
BSHC	75.0%	82.4%	0.0%	8.8%	0.0%	1.1%	0.0%	1.1%	25.0%	6.6%
Total	74.2%	74.8%	12.1%	14.1%	0.0%	3.2%	0.0%	2.5%	13.6%	5.3%

2h Pre-operative diagnosis rate

Description:

The number of women in which a needle biopsy provides the definitive diagnosis (pre-operative diagnosis), as a percentage of all women diagnosed with breast cancer in the programme.

Target:

>90% (desired target)
>70% (expected target)

Table 2h: Percentage of women with a preoperative diagnosis of cancer, 2 years (January 2006 to December 2007

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Number with pre-operative diagnosis of cancer	Number. of cancers	% of cancers with a pre-operative diagnosis (95% CI)	Number with pre-operative diagnosis of cancer	Number of cancers	% of cancers with a pre-operative diagnosis (95% CI)	
2 years (Jan 2006 to Dec 2007)							
BSWN	24	24	100.0(88.3-100)	181	189	95.8(91.8-98.2)	1.04(1.01-1.07)
BSCM	16	16	100.0(82.9-100)	81	90	90.0(81.9-95.3)	1.11(1.04-1.19)
BSAL	9	9	100.0(71.7-100)	82	84	97.6(91.7-99.7)	1.02(0.99-1.05)
BSM	22	25	88.0(68.8-97.5)	141	148	95.3(90.5-98.1)	0.92(0.79-1.07)
BSCtoC	24	25	96.0(79.6-99.9)	129	133	97.0(92.5-99.2)	0.99(0.91-1.08)
BSC	18	19	94.7(74.0-99.9)	104	112	92.9(86.4-96.9)	1.02(0.91-1.15)
BSSL	20	20	100.0(86.1-100)	245	255	96.1(92.9-98.1)	1.04(1.01-1.07)
BSHC	0	0	0.0(0.0-100)	66	73	90.4(81.2-96.1)	0.00 *
Total	**133**	**138**	**96.4(91.7-98.8)**	**1,029**	**1,084**	**94.9(93.4-96.2)**	**1.02**(0.98-1.06)

Ratios below one are unfavourable to Māori. Rates that did not meet the expected target within the confidence interval are shaded.
*CI not estimable

Rates of cancers diagnosed by needle biopsy prior to an operation were similar for both Māori and non-Māori women. There was no significant disparity between providers. The desired target of more than 90% was met overall and by individual providers excepting BSHC which detected no cancers and therefore no needle biopsies were necessary during this time period.

2I Specificity

Description:

Specificity is the proportion of women without breast cancer at screening with a negative screen result. This is estimated by expressing the number of women who have a negative screen result as a percentage of all women screened excluding the women screened positive with cancer. This is calculated as: Number with true negative screening results as a percentage of this number plus the number with false positive screening results.

Target:

>93%

Table 2I.1: Estimated specificity of BSA by Lead provider, by type of screen (initial and subsequent), 2 years (January 2006 to December 2007)

	Initial			Subsequent			
Lead provider	Negative screens (RRS* from screen)	Negative screens plus false positives	Estimated specificity (95% CI)	Negative screens (RRS from screen)	Negative screens plus false positives	Estimated specificity (95% CI)	Total specificity (95% CI)
Māori							
BSWN	647	712	90.9(88.5-92.9)	1,873	1,934	96.8(96.0-97.6)	95.2(94.4-96.0)
BSCM	540	598	90.3(87.6-92.6)	1,267	1,304	97.2(96.1-98.0)	95.0(93.9-95.9)
BSAL	224	243	92.2(88.1-95.2)	594	612	97.1(95.4-98.2)	95.7(94.1-96.9)
BSM	694	780	89.0(86.6-91.1)	2,547	2,635	96.7(95.9-97.3)	94.9(94.1-95.6)
BSCtoC	552	615	89.8(87.1-92.0)	1,989	2,019	98.5(97.9-99.0)	96.5(95.7-97.1)
BSC	357	390	91.5(88.3-94.1)	1,089	1,116	97.6(96.5-98.4)	96.0(94.9-96.9)
BSSL	213	233	91.4(87.1-94.7)	1,415	1,447	97.8(96.9-98.5)	96.9(96.0-97.7)
BSHC	86	92	93.5(86.3-97.6)	426	434	98.2(96.4-99.2)	97.3(95.6-98.5)
Total BSA	**3,313**	**3,663**	**90.4(89.4-91.4)**	**11,200**	**11,501**	**97.4(97.1- 97.7)**	**95.7**(95.4-96.0)
Non-Māori							
BSWN	6,466	6,990	92.5(91.9-93.1)	22,496	23,098	97.4(97.2-97.6)	96.3(96.0-96.5)
BSCM	3,887	4,273	91.0(90.1-91.8)	12,377	12,739	97.2(96.9-97.4)	95.6(95.3-95.9)
BSAL	3,372	3,613	93.3(92.5-94.1)	11,097	11,366	97.6(97.3-97.9)	96.6(96.3-96.9)
BSM	3,696	4,043	91.4(90.5-92.3)	23,915	24,681	96.9(96.7-97.1)	96.1(95.9-96.3)
BSCtoC	3,899	4,170	93.5(92.7-94.2)	22,333	22,705	98.4(98.2-98.5)	97.6(97.4-97.8)
BSC	3,506	3,801	92.2(91.3-93.1)	19,407	19,965	97.2(97.0-97.4)	96.4(96.2-96.6)
BSSL	4,943	5,240	94.3(93.7-94.9)	44,940	45,869	98.0(97.8-98.1)	97.6(97.5-97.7)
BSHC	2,034	2,256	90.2(88.9-91.4)	15,092	15,450	97.7(97.4-97.9)	96.7(96.5-97.0)
Total BSA	**31,803**	**34,386**	**92.5(92.2- 92.8)**	**171,657**	**175,873**	**97.6(97.5-97.7)**	**96.8**(96.7-96.8)

Shaded boxes show confidence interval excludes target..

*RRS=return to routine screening

The target of more than 93% of women without cancer who also screened negative for cancer was not met in initial screens for either Māori (90.4%) or non-Māori (92.5%). Most providers were around the 90% level. In subsequent screens, the specificity was similar for Māori (97.4%) and non-Māori (97.6%) and the target was exceeded by all providers. Overall specificity for both populations in both types of screening exceeded the target.

2m Benign biopsy rate

Description:

The number of open biopsies that turn out to be benign lesions, expressed as a proportion of women screened.

Target:

Initial (prevalent) screen: ≤ 3.5 per 1,000 women screened
Subsequent (incident) screen: ≤ 1.6 per 1,000 women screened

Table 2m: Benign open biopsies as a proportion of women screened, by type of screen (initial and subsequent), 2 years (January 2006 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Benign open biopsies	Number of women screened	Benign biopsies per 1,000 women screened (95% CI)	Benign open biopsies	Number of women screened	Benign biopsies per 1,000 women screened (95% CI)	
Initial screens							
BSWN	2	710	2.8(0.3-10.1)	16	7035	2.3(1.3-3.7)	1.24(0.29-5.38)
BSCM	2	603	3.3(0.4-11.9)	7	4240	1.7(0.7-3.4)	2.01(0.42-9.65)
BSAL	0	243	0.0(0.0-12.3)	11	3632	3.0(1.5-5.4)	0.00 *
BSM	1	790	1.3(0.0-7.0)	8	4058	2.0(0.9-3.9)	0.64(0.08-5.11)
BSCtoC	2	621	3.2(0.4-11.6)	4	4099	1.0(0.3-2.5)	3.30(0.61-17.98)
BSC	1	390	2.6(0.1-14.2)	6	3670	1.6(0.6-3.6)	1.57(0.19-13.01)
BSSL	1	237	4.2(0.1-23.3)	2	5007	0.4(0.0-1.4)	10.56(0.96-16.05)
BSHC	1	91	11.0(0.3-59.7)	12	2194	5.5(2.8-9.5)	2.01(0.26-15.29)
Total	**10**	**3685**	**2.7(1.3-5.0)**	**66**	**33935**	**1.9(1.5-2.5)**	**1.40(0.72-2.72)**
Subsequent screens							
BSWN	2	1,866	1.1(0.1-3.9)	11	22,439	0.5(0.2-0.9)	2.19(0.49-9.87)
BSCM	1	1,229	0.8(0.0-4.5)	6	12,002	0.5(0.2-1.1)	1.63(0.20-13.53)
BSAL	1	595	1.7(0.0-9.3)	18	11,074	1.6(1.0-2.6)	1.03(0.14-7.70)
BSM	0	2,639	0.0(0.0-1.1)	16	24,727	0.6(0.4-1.1)	0.00 *
BSCtoC	1	2,009	0.5(0.0-2.8)	8	22,339	0.4(0.2-0.7)	1.39(0.17-11.11)
BSC	2	1,079	1.9(0.2-6.7)	10	19,121	0.5(0.3-1.0)	3.54(0.78-16.14)
BSSL	1	1,416	0.7(0.0-3.9)	22	44,440	0.5(0.3-0.7)	1.43(0.19-10.60)
BSHC	1	428	2.3(0.1-12.9)	16	15,097	1.1(0.6-1.7)	2.20(0.29-16.55)
Total	**9**	**11,261**	**0.8(0.4-1.5)**	**107**	**171,239**	**0.6(0.5-0.8)**	**1.28(0.65-2.53)**

Ratios above one are unfavourable to Māori. *CI not estimable

Overall the targets were met for both Māori and non-Māori women in both initial and subsequent screens.

SECTION 3: EARLY DETECTION OF DCIS OR INVASIVE BREAST CANCER

3a.1 Detection of DCIS or invasive breast cancer

Description:

The number of women who have breast cancer detected within BSA, expressed as a rate per 1,000 women screened. Targets now only apply to invasive breast cancers.

Table 3a.1: Detection rate of DCIS and invasive breast cancer per 1,000 women screened by type of screen (initial and subsequent), 2 years (January 2006 to December 2007)

Lead provider	Māori		Non-Māori		Māori/non-Māori ratio (95% CI)
	Number with breast cancer	Rate per 1,000 women screened (95% CI)	Number with breast cancer	Rate per 1,000 women screened (95% CI)	
Initial screens					
BSWN	9	12.7(5.8-23.9)	62	8.8(6.8-11.3)	1.44(0.72-2.88)
BSCM	11	18.2(9.1-32.4)	32	7.5(5.2-10.6)	2.42(1.23-4.78)
BSAL	4	16.5(4.5-41.6)	27	7.4(4.9-10.8)	2.21(0.78-6.27)
BSM	9	11.4(5.2-21.5)	27	6.7(4.4-9.7)	1.71(0.81-3.62)
BSCtoC	10	16.1(7.7-29.4)	26	6.3(4.1-9.3)	2.54(1.23-5.24)
BSC	7	17.9(7.2-36.6)	21	5.7(3.5-8.7)	3.14(1.34-7.34)
BSSL	7	29.5(12.0-59.9)	51	10.2(7.6-13.4)	2.90(1.33-6.32)
BSHC	0	0.0(0.0-32.4)	12	5.5(2.8-9.5)	0.00 *
Total	**57**	**15.5(11.7-20)**	**258**	**7.6(6.7-8.6)**	**2.03(1.53-2.70)**
Subsequent screens					
BSWN	15	8.0(4.5-13.2)	127	5.7 (4.7-6.7)	1.42(0.83-2.42)
BSCM	5	4.1(1.3-9.5)	58	4.8 (3.7-6.2)	0.84(0.34-2.09)
BSAL	5	8.4(2.7-19.5)	57	5.1 (3.9-6.7)	1.63(0.66-4.05)
BSM	16	6.1(3.5-9.8)	121	4.9 (4.1-5.8)	1.24(0.74-2.09)
BSCtoC	15	7.5(4.2-12.3)	107	4.8 (3.9-5.8)	1.56(0.91-2.67)
BSC	12	11.1(5.8-19.3)	91	4.8 (3.8-5.8)	2.34(1.29-4.26)
BSSL	13	9.2(4.9-15.6)	204	4.6 (4.0-5.3)	2.00(1.14-3.49)
BSHC	0	0.0(0.0-7.0)	61	4.0 (3.1-5.2)	0.00 *
Total	**81**	**7.2(5.7-8.9)**	**826**	**4.8 (4.5-5.2)**	**1.49(1.19-1.87)**

A ratio above 1.0 is unfavourable for Māori. Shaded boxes show confidence interval excludes target. *CI not estimable

The rate of detection of DCIS or invasive cancer rate for Māori in initial screens was twice that of non-Māori and the rate in subsequent screens was around 50% higher.

3a.2 Detection of invasive breast cancer

Description:

The number of women who have invasive breast cancer detected within BSA, expressed as a rate per 1,000 women screened.

Target:

Initial (prevalent) round: ≥ 6.9 per 1,000 women screened
Subsequent (incident) round: ≥ 3.45 per 1,000 women screened

Table 3a.2: Detection rate of invasive breast cancer per 1,000 women screened by type of screen (initial and subsequent), 2 years (January 2006 to December 2007)

	Māori		Non-Māori		
Lead provider	Number with breast cancer	Rate per 1,000 women screened (95% CI)	Number with breast cancer	Rate per 1,000 women screened (95% CI)	Māori/non-Māori ratio (95% CI)
Initial screens					
BSWN	6	8.5(3.1-18.3)	49	7.0(5.2-9.2)	1.21(0.52-2.81)
BSCM	10	16.6(8.0-30.3)	19	4.5(2.7-7.0)	3.70(1.73-7.92)
BSAL	3	12.3(2.6-35.7)	16	4.4(2.5-7.1)	2.80(0.82-9.54)
BSM	6	7.6(2.8-16.5)	21	5.2(3.2-7.9)	1.47(0.60-3.63)
BSCtoC	10	16.1(7.7-29.4)	19	4.6(2.8-7.2)	3.47(1.62-7.43)
BSC	5	12.8(4.2-29.7)	13	3.5(1.9-6.0)	3.62(1.3-10.10)
BSSL	5	21.1(6.9-48.5)	43	8.6(6.2-11.6)	2.46(0.98-6.15)
BSHC	0	0.0(0-32.4)	10	4.6(2.2-8.4)	0.00 *
Total	**45**	**12.2(8.9-16.3)**	**190**	**5.6(4.8-6.5)**	**2.18(1.58-3.01)**
Subsequent screens					
BSWN	10	5.4(2.6-9.8)	92	4.1(3.3-5.0)	1.31(0.68-2.51)
BSCM	4	3.3(0.9-8.3)	38	3.2(2.2-4.3)	1.03(0.37-2.88)
BSAL	2	3.4(0.4-12.1)	35	3.2(2.2-4.4)	1.06(0.26-4.40)
BSM	15	5.7(3.2-9.4)	90	3.6(2.9-4.5)	1.56(0.90-2.69)
BSCtoC	12	6.0(3.1-10.4)	87	3.9(3.1-4.8)	1.53(0.84-2.79)
BSC	10	9.3(4.5-17.0)	62	3.2(2.5-4.2)	2.86(1.47-5.56)
BSSL	12	8.5(4.4-14.8)	151	3.4(2.9-4.0)	2.49(1.39-4.47)
BSHC	0	0.0(0-7.0)	43	2.8(2.1-3.8)	0.00 *
Total	**65**	**5.8(4.5-7.4)**	**598**	**3.5(3.2-3.8)**	**1.65(1.28-2.13)**

Ratios above 1.0 are unfavourable for Māori. Shaded boxes show confidence interval includes target. *CI not estimable

In initial screens, the overall detection rate of 12.2 invasive cancers per 1,000 women screened for Māori was more than twice that of non-Māori (5.6 per 1,000 women screened). The target was met for Māori women but not for non-Māori. Most providers demonstrated a higher detection rate among Māori apart from BSHC which detected no cancers among Māori during this period.

A similar situation existed in subsequent screens, with detection higher for Māori, although the disparity was not as pronounced, with a ratio of 1.65 overall and individual ratios ranging from 1.03 to 2.86. The target was met for both Māori and non-Māori.

This higher detection rates for Māori likely reflects a higher background incidence of invasive breast cancers in Māori women.

Summary

Summary of Referral to Assessment, Specificity, False Positives and Detection Rate of DCIS and Invasive Cancer.

Table 3a.3: Summary of Referral to Assessment, Specificity, False Positives and Detection Rate of DCIS and Invasive Cancer, 2 years (January 2006 to December 2007)

	Māori				Non-Māori			
Lead Provider	Referral to assessment as % of women screened	Estimated specificity	Positive Predictive Value	Detection rate per 1,000 women screened	Referral to assessment as % of women screened	Estimated Specificity	Positive Predictive Value	Detection rate per 1,000 women screened
Initial screens								
BSWN	11.1%	90.9%	11.4%	12.7	8.6%	92.5%	10.2%	8.8
BSCM	11.6%	90.3%	15.7%	18.2	10.1%	91.0%	7.5%	7.5
BSAL	10.3%	92.2%	16.0%	16.5	7.9%	93.3%	9.4%	7.4
BSM	12.4%	89.0%	9.2%	11.4	9.4%	91.4%	7.1%	6.7
BSCtoC	11.8%	89.8%	13.7%	16.1	7.5%	93.5%	8.4%	6.3
BSC	10.3%	91.5%	17.5%	17.9	8.6%	92.2%	6.6%	5.7
BSSL	11.4%	91.4%	25.9%	29.5	7.0%	94.3%	14.6%	10.2
BSHC	7.7%	93.5%	0.0%	0.0	10.9%	90.2%	5.0%	5.5
BSA Total	**11.4%**	**90.4%**	**13.6%**	**15.5**	**8.6%**	**92.5%**	**8.8%**	**7.6**
Subsequent screens								
BSWN	4.3%	96.8%	18.8%	8.0	3.4%	97.4%	16.8%	5.7
BSCM	3.6%	97.2%	11.4%	4.1	3.5%	97.2%	13.6%	4.8
BSAL	4.0%	97.1%	20.8%	8.4	3.1%	97.6%	16.5%	5.1
BSM	4.0%	96.7%	15.1%	6.1	3.6%	96.9%	13.5%	4.9
BSCtoC	2.4%	98.5%	30.6%	7.5	2.2%	98.4%	21.9%	4.8
BSC	3.6%	97.6%	30.8%	11.1	3.4%	97.2%	13.9%	4.8
BSSL	3.2%	97.8%	28.9%	9.2	2.6%	98.0%	17.9%	4.6
BSHC	1.9%	98.2%	0.0%	0.0	2.8%	97.7%	14.3%	4.0
BSA Total	**3.5%**	**97.4%**	**20.5%**	**7.2**	**3.0%**	**97.6%**	**16.1%**	**4.8**

The summary tables 3a.3 and 3a.4 provide an overview of some of the data from Sections Two and Three.

Referral to assessment as percentage of women screened

Referrals to assessment are discussed in section 2d. For initial screens, the expected value is <10% and the desired value is <7%. For subsequent screens, the expected value is <5% and the desired value is <4%.

A greater proportion of Māori women were referred to assessment compared to non-Māori women in both initial and subsequent screens. Overall, the referral to assessment for Māori in initial screens was greater than the expected target of less than 10%, and most individual providers also exceeded this value for Māori women.

Estimated specificity

Estimated specificity relates to tables 2l.1 and 2l.2. Specificity refers to the probability of screening negative if a cancer is truly absent. The target is >93%.

For initial screens the target was not met for either Māori or non-Māori women overall, although the overall proportion was slightly higher for non-Māori (92.5%) than Māori (90.4%). The target for subsequent screens and total specificity was met for both groups.

Positive predictive value
Positive predictive values are detailed in section 2f. This indicates the probability that an individual with a positive test actually has cancer. The desired target is ≥ 9% of all referrals.

Overall the target was met for Māori in both initial and subsequent screens, with all individual providers meeting the target apart from BSHC which detected no cancers during this time period. The target was not met for non-Māori in initial screens. The positive predictive value was higher for Māori in both initial and subsequent screens.

Detection rate per 1,000 women screened
Detection rates of DCIS + invasive cancers are detailed in table 3a.1 above. The target for initial screens is ≥ 6.9, and for subsequent screens is ≥ 3.45.

The detection rate for Māori women in initial screens is more than twice that for non-Māori in initial screens overall, and 50% greater in subsequent screens. This is indicative of a higher background cancer incidence.

Overall comments
There continues to be a greater proportion of Māori women referred for assessment compared to non-Māori women, a higher cancer detection rate overall and higher positive predictive values (ie; probability of actually having cancer following a positive test). This is likely to reflect the higher background cancer incidence for Māori, and may also be affected by the increased likelihood of non-Māori women undergoing screening before joining the BSA programme. There is therefore a higher chance of cancer detection in the Māori population screened through BSA.

Table 3a4.1: Māori/non-Māori summary ratios, 2 years (January 2006 to December 2007)

	Initial screens				Subsequent screens			
Lead Provider	Referral to assessment as % of women screened	Estimated specificity	Positive Predictive Value	Detection rate per 1,000 women screened	Referral to assessment as % of women screened	Estimated Specificity	Positive Predictive Value	Detection rate per 1,000 women screened
BSWN	1.29	0.98	1.12	1.44	1.27	0.99	1.12	1.42
BSCM	1.15	0.99	2.09	2.42	1.01	1.00	0.84	0.84
BSAL	1.30	0.99	1.70	2.21	1.29	0.99	1.26	1.63
BSM	1.32	0.97	1.30	1.71	1.10	1.00	1.12	1.24
BSCtoC	1.56	0.96	1.63	2.54	1.12	1.00	1.40	1.56
BSC	1.19	0.99	2.65	3.14	1.05	1.00	2.22	2.34
BSSL	1.63	0.97	1.77	2.90	1.24	1.00	1.61	2.00
BSHC	0.70	1.04	0.00	0.00	0.66	1.00	0.00	0.00
BSA Total	**1.32**	**0.98**	**1.55**	**2.03**	**1.17**	**1.00**	**1.27**	**1.49**

Ratios

Referral to assessment
A ratio **above 1.0** indicates more Māori are being referred than non-Māori. Overall ratios are above 1.0, and for most individual providers (except BSHC).

Estimated specificity
A ratio **below 1.0** indicates that the probability of screening negative if the cancer is truly absent is lower for Māori than non-Māori, therefore more false positives. The majority of the ratios are close to 1.00.

Positive predictive value
A ratio **above 1.0** indicates that of all patients tested positive for breast cancer, the proportion of Māori who actually have the disease is greater than the proportion of non-Māori. Most ratios were above 1.00, showing a higher proportion of Māori patients than non-Māori patients who tested positive for breast cancer actually had the disease.

Detection rate per 1,000 women screened
A ratio **above 1.0** demonstrates that a higher proportion of Māori women screened had cancers detected. While it is beneficial that these are being detected through the screening programme, it is indicative of a higher background cancer incidence. Ratios are mostly above 1.0, with some ratios indicating a detection rate more than two or three times the non-Māori rate.

3a.5 Treatment data completeness

Description:

Lead Providers have 9 months to complete data entry for women referred to treatment.

Target:

≥ 90%

Table 3a.5: Treatment data completeness, 7 years (January 2001 to December 2007)

	Māori								Non-Māori							
Lead Provider	BSWN	BSCM	BSAL	BSM	BSCtoC	BSC	BSSL	BSHC	BSWN	BSCM	BSAL	BSM	BSCtoC	BSC	BSSL	BSHC
Women referred for Treatment	24	16	102	100	73	46	46	3	189	97	951	532	450	413	917	265
% Staging Complete	100%	100%	97%	97%	100%	100%	100%	100%	96%	93%	98%	98%	100%	99%	99%	96%
% Surgical Complete	100%	100%	96%	99%	100%	100%	100%	100%	96%	96%	97%	99%	100%	100%	100%	98%
% Endocrine Complete			98%	96%	100%	93%	96%	100%	92%	93%	96%	95%	99%	97%	99%	96%
% Radiotherapy Complete		100%	97%	96%	100%	91%	98%	100%		90%	96%	95%	100%	97%	99%	96%
% Chemotherapy Complete	92%	100%	97%	96%	100%	93%	98%	100%	93%	94%	96%	96%	100%	98%	99%	97%

Shaded boxes show confidence interval includes target.

Most providers met the targets for treatment data completeness. No significant disparity is seen between Māori and non-Māori.

Note: BSWN and BSCM were unable to reach the 90% threshold for data completion requirement for endocrine treatment for Māori women and BSWN was unable to reach the 90% threshold for data completion requirement for radiotherapy for both Māori and non-Māori women. As a consequence, their data has been excluded from the radiotherapy and endocrine treatment tables and from the BSA totals for these tables.

3b Detection of invasive cancers that are less than or equal to 10mm in size

Description:

Proportion and rate of primary invasive breast cancer of diameter ≤10mm.

Target:

Initial (prevalent) round: ≥25%, which gives a rate of ≥ 15.2 per 10,000 screens
Subsequent (incident) round: ≥30%, which gives a rate of ≥10.45 per 10,000 screens

Table 3b.1: Proportion of invasive cancers less than or equal to 10mm, 7 years (January 2001-December 2007)

	Māori			Non-Māori			
Lead provider	Invasive cancers ≤10mm	Total invasive cancers	% of invasive cancers ≤10mm	Invasive cancers ≤10mm	Total invasive cancers	% of invasive cancers ≤10mm	Māori/non-Māori ratio (95% CI)
Initial screens							
BSWN	4	6	66.7(22.3-95.7)	13	49	26.5(14.9-41.1)	2.51(1.21-5.22)
BSCM	2	10	20.0(2.5-55.6)	5	20	25.0(8.7-49.1)	0.80(0.19-3.42)
BSAL	8	39	20.5(9.3-36.5)	90	256	35.2(29.3-41.3)	0.58(0.31-1.10)
BSM	9	36	25.0(12.1-42.2)	25	102	24.5(16.5-34.0)	1.02(0.53-1.97)
BSCtoC	5	28	17.9(6.1-36.9)	29	105	27.6(19.3-37.2)	0.65(0.28-1.52)
BSC	3	15	20.0(4.3-48.1)	35	87	40.2(29.9-51.3)	0.50(0.18-1.42)
BSSL	5	12	41.7(15.2-72.3)	75	197	38.1(31.3-45.2)	1.09(0.55-2.18)
BSHC	0	2	0.0(0.0-77.6)	8	44	18.2(8.2-32.7)	0.00 *
Total BSA	**36**	**148**	**24.3(17.7-32.1)**	**280**	**860**	**32.6(29.4-35.8)**	**0.75(0.56-1.01)**
Subsequent screens							
BSWN	3	10	30.0(6.7-65.2)	44	92	47.8(37.3-58.5)	0.63(0.24-1.66)
BSCM	0	4	0.0(0.0-52.7)	12	43	27.9(15.3-43.7)	0.00 *
BSAL	9	30	30.0(14.7-49.4)	160	394	40.6(35.7-45.6)	0.74(0.42-1.29)
BSM	13	45	28.9(16.4-44.3)	117	306	38.2(32.8-43.9)	0.76(0.47-1.23)
BSCtoC	12	37	32.4(18.0-49.8)	97	272	35.7(30.0-41.7)	0.91(0.56-1.49)
BSC	10	23	43.5(23.2-65.5)	102	230	44.3(37.8-51.0)	0.98(0.60-1.60)
BSSL	4	22	18.2(5.2-40.3)	206	508	40.6(36.2-45.0)	0.45(0.18-1.10)
BSHC	0	0	0.0(0.0-100)	57	155	36.8(29.2-44.9)	0.00 *
Total BSA	**51**	**171**	**29.8(23.1-37.3)**	**795**	**2,000**	**39.8(37.6-41.9)**	**0.75(0.59-0.95)**

Ratios below one are unfavourable to Māori. *CI not estimable

Overall, the proportion of cancers found that were 10mm or less was very close to the target values for Māori in both initial and subsequent screens and exceeded the target for non-Māori. The proportion of small invasive cancers detected in Māori women was 75% of the proportion detected among non-Māori women. This indicates a higher proportion of larger cancers for Māori, compared to non-Māori. The actual number of cancers was small for Māori and confidence intervals for the ratios included 1.0, therefore not considered statistically significant.

3c Proportion of invasive cancers that are less than 15mm in size

Description:

Rate and proportion of primary invasive breast cancer of diameter <15mm.

Target:

Initial (prevalent) round: >50%, which gives a rate of >30.5 per 10,000 women screened.
Subsequent (incident) round: >50%, which gives a rate of > 17.3 per 10,000 women screened

Table 3c.1: Proportion of invasive cancers less than 15mm, 7 years (January 2001-Dec 2007)

	Māori			Non-Māori			
Lead provider	Invasive cancers <15mm	Total invasive cancers	% of invasive cancers <15mm	Invasive cancers <15mm	Total invasive cancers	% of invasive cancers <15mm	Māori/non-Māori ratio (95% CI)
Initial screens							
BSWN	6	6	100.0 (60.7-100.0)	20	49	40.8 (27.0-55.8)	2.45 (1.75-3.43)
BSCM	4	10	40.0 (12.2-73.8)	5	20	25.0 (8.7-49.1)	1.60 (0.55-4.68)
BSAL	16	39	41.0 (25.6-57.9)	126	256	49.2 (42.9-55.5)	0.83 (0.56-1.23)
BSM	14	36	38.9 (23.1-56.5)	40	102	39.2 (29.7-49.4)	0.99 (0.62-1.59)
BSCtoC	9	28	32.1 (15.9-52.4)	43	105	41.0 (31.5-51.0)	0.78 (0.43-1.40)
BSC	5	15	33.3 (11.8-61.6)	47	87	54.0 (43.0-64.8)	0.62 (0.30-1.30)
BSSL	9	12	75.0 (42.8-94.5)	115	197	58.4 (51.2-65.3)	1.28 (0.90-1.81)
BSHC	0	2	0.0 (0.0-77.6)	14	44	31.8 (18.6-47.6)	0.00 *
Total	**63**	**148**	**42.6 (34.5-51.0)**	**410**	**860**	**47.7 (44.3-51.1)**	**0.89 (0.73-1.09)**
Subsequent screens							
BSWN	4	10	40.0 (12.2-73.8)	60	92	65.2 (54.6-74.9)	0.61 (0.28-1.32)
BSCM	2	4	50.0 (6.8-93.2)	23	43	53.5 (37.7-68.8)	0.93 (0.34-2.58)
BSAL	11	30	36.7 (19.9-56.1)	231	394	58.6 (53.6-63.5)	0.63 (0.39-1.02)
BSM	20	45	44.4 (29.6-60.0)	178	306	58.2 (52.4-63.8)	0.76 (0.54-1.07)
BSCtoC	23	37	62.2 (44.8-77.5)	157	272	57.7 (51.6-63.7)	1.08 (0.82-1.42)
BSC	15	23	65.2 (42.7-83.6)	145	230	63.0 (56.5-69.3)	1.03 (0.75-1.41)
BSSL	8	22	36.4 (17.2-59.3)	300	508	59.1 (54.6-63.4)	0.62 (0.36-1.08)
BSHC	0	0	0.0 (0.0-100.0)	95	155	61.3 (53.1-69.0)	0.00 *
Total	**83**	**171**	**48.5 (40.8-56.3)**	**1,189**	**2,000**	**59.5 (57.3-61.6)**	**0.82 (0.70-0.96)**

Ratios below one are unfavourable to Māori. *CI not estimable

The proportion of screen detected invasive cancers <15mm in size among Māori for the 7 year period January 2001 to December 2007 was 42.6% for initial screens and 48.5% for subsequent screens (both not significantly different from the targets of 50%). Among non-Māori, the proportions were 47.7% for initial screens (not significantly different from the target), and 59.5% for subsequent screens (above target).

Data on the rate per 10,000 women screened for the 7 year period is not available.

3d Nodal involvement

Description:

The proportion of women with invasive screen detected breast cancer that do not have nodal involvement. Note: this is calculated as 1 minus the proportion of women with invasive screen detected breast cancer who have nodal involvement.

Target:

Initial (prevalent) round: >70%
Subsequent (incident) round: >75%

Table 3d: Invasive cancers without nodal involvement, 7 years (January 2001-December 2007), by type of screen (initial and subsequent)

	Māori			Non-Māori			
Lead provider	Women with invasive cancers who are node positive	Total initial invasive cancers	% of initial invasive cancers with no nodal involvement	Women with invasive cancers who are node positive	Total invasive cancers	% of invasive cancers with no nodal involvement	Māori/non-Māori ratio (95% CI)
Initial screens							
BSWN	0	6	100(60.7-100)	10	49	79.6(65.7-89.8)	1.26(1.09-1.45)
BSCM	3	10	70.0(34.8-93.3)	6	20	70.0(45.7-88.1)	1.00(0.61-1.64)
BSAL	9	39	76.9(60.7-88.9)	64	256	75.0(69.2-80.2)	1.03(0.86-1.24)
BSM	12	36	66.7(49.0-81.4)	39	102	61.8(51.6-71.2)	1.08(0.82-1.42)
BSCtoC	8	28	71.4(51.3-86.8)	35	105	66.7(56.8-75.6)	1.07(0.82-1.40)
BSC	4	15	73.3(44.9-92.2)	18	87	79.3(69.3-87.3)	0.92(0.67-1.27)
BSSL	4	12	66.7(34.9-90.1)	42	197	78.7(72.3-84.2)	0.85(0.57-1.28)
BSHC	2	2	0.0(0-77.6)	15	44	65.9(50.1-79.5)	0.00 *
Total	**42**	**148**	**71.6(63.6-78.7)**	**229**	**860**	**73.4(70.3-76.3)**	**0.98(0.88-1.09)**
Subsequent screens							
BSWN	3	10	70.0(34.8-93.3)	10	92	89.1(80.9-94.7)	0.79(0.52-1.19)
BSCM	0	4	100.0(47.3-100)	8	43	81.4(66.6-91.6)	1.23(1.07-1.42)
BSAL	8	30	73.3(54.1-87.7)	97	394	75.4(70.8-79.6)	0.97(0.78-1.21)
BSM	17	45	62.2(46.5-76.2)	67	306	78.1(73.0-82.6)	0.80(0.63-1.01)
BSCtoC	10	37	73.0(55.9-86.2)	65	272	76.1(70.6-81.0)	0.96(0.78-1.18)
BSC	4	23	82.6(61.2-95.0)	52	230	77.4(71.4-82.6)	1.07(0.88-1.31)
BSSL	10	22	54.5(32.2-75.6)	116	508	77.2(73.3-80.7)	0.71(0.48-1.04)
BSHC	0	0	0.0(0-100)	39	155	74.8(67.2-81.5)	0.00 *
Total	**52**	**171**	**69.6(62.1-76.4)**	**454**	**2,000**	**77.3(75.4-79.1)**	**0.90(0.81-1.0)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target. *CI not estimable

The target for invasive screen detected breast cancer without nodal involvement was met for Māori and non-Māori for initial screens. For subsequent screens the target was within the confidence interval for Māori women and above target for non-Māori women. There were no significant differences between Māori and non-Māori.

3e Ductal carcinoma

Description:

The percentage of all women with screen detected cancer who are diagnosed as having Ductal Carcinoma in Situ (DCIS) as their primary lesion.

Target:

10-25% of all cancers detected by the programme are DCIS.

Table 3e: Women with DCIS as a percentage of all screen detected cancers, 7 years (January 2001 to December 2007)

	Māori			Non-Māori			
Lead provider	Number of DCIS	Total number of cancers	% of total cancer (95% CI)	Number of DCIS	Total number of cancers	% of total cancers (95% CI)	Māori/non-Māori ratio (95% CI)
BSWN	8	24	33.3(15.6-55.3)	40	181	22.1(16.3-28.9)	1.51(0.81-2.83)
BSCM	2	16	12.5(1.6-38.3)	27	90	30.0(20.8-40.6)	0.42(0.11-1.59)
BSAL	30	99	30.3(21.5-40.4)	275	925	29.7(26.8-32.8)	1.02(0.74-1.40)
BSM	16	97	16.5(9.7-25.4)	116	524	22.1(18.7-25.9)	0.75(0.47-1.21)
BSCtoC	8	73	11.0(4.9-20.5)	72	449	16.0(12.8-19.8)	0.68(0.34-1.35)
BSC	8	46	17.4(7.8-31.4)	86	403	21.3(17.4-25.7)	0.81(0.42-1.56)
BSSL	12	46	26.1(14.3-41.1)	200	905	22.1(19.4-24.9)	1.18(0.71-1.95)
BSHC	1	3	33.3(0.8-90.6)	54	253	21.3(16.5-26.9)	1.56(0.31-7.86)
Total	**85**	**404**	**21.0(17.2-25.3)**	**870**	**3,730**	**23.3(22.0-24.7)**	**0.90(0.74-1.10)**

Overall, the proportion of screen detected cancers that were DCIS was within the target range for both Māori and non-Māori women, with no significant difference between them.

SECTION 4: TREATMENT

4a Proportion of invasive cancers having a surgical axillary procedure

Description:

Percentage of all women who are operated on for a screen detected invasive cancer, over 1mm in size, who have a surgical axillary procedure.

Target:

95% of women operated on for invasive cancer over 1mm in size, should normally have a surgical axillary procedure.

Table 4a: Percentage of invasive cancers having a surgical axillary procedure, 7 years (January 2001-December 2007)

	Māori			Non-Māori			
Lead provider	Number having a surgical axillary procedure for invasive cancers >1mm	Number having an operation for invasive cancers >1mm	% of invasive cancers, >1mm, having a surgical axillary procedure	Number having a surgical axillary procedure for invasive cancers >1mm	Number having an operation for invasive cancers >1mm	% of invasive cancers, >1mm, having a surgical axillary procedure	Māori/non-Māori ratio (95% CI)
BSWN	9	9	100.0(71.7-100)	83	86	96.5(90.1-99.3)	1.04(1.0-1.08)
BSCM	12	12	100.0(77.9-100)	50	50	100.0(94.2-100)	1.00(1.00-1.00)
BSAL	45	51	88.2(76.1-95.6)	349	419	83.3(79.4-86.7)	1.06(0.95-1.18)
BSM	62	63	98.4(91.5-100)	298	309	96.4(93.7-98.2)	1.02(0.98-1.06)
BSCtoC	53	53	100.0(94.5-100)	270	279	96.8(94.0-98.5)	1.03(1.01-1.05)
BSC	24	26	92.3(74.9-99.1)	194	198	98.0(94.9-99.4)	0.94(0.84-1.05)
BSSL	26	27	96.3(81.0-99.9)	477	492	97.0(95.0-98.3)	0.99(0.92-1.07)
BSHC	2	2	100.0(22.4-100)	149	156	95.5(91.0-98.2)	1.05(1.01-1.09)
Total	**233**	**243**	**95.9(92.6-98.0)**	**1,870**	**1,989**	**94.0(92.9-95.0)**	**1.02(0.99-1.05)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target..

Overall, the target proportion of invasive cancers having a surgical axillary procedure during the 7-year period January 2001 to December 2007 was met for Māori women and was very close to target for non-Māori women. There was no difference between Māori and non-Māori women.

4b Proportion of invasive cancers having a single excisional procedure

Description:

The proportion of women with invasive cancer who have a single excisional breast treatment procedure.

Target: No target.

Table 4b: Proportion of invasive cancers having a single excisional breast treatment procedure, 7 years (January 2001-December 2007)

	Māori			Non-Māori			
Lead provider	No. having a single excisional procedure for invasive cancer	No. of invasive cancers having surgical breast procedure	% of invasive cancers having a single excisional breast treatment procedure (95% CI)	No. having a single excisional procedure for invasive cancer	No. of invasive cancers having surgical breast procedure	% of invasive cancers having a single excisional breast treatment procedure (95% CI)	Māori/non-Māori ratio (95% CI)
BSWN	16	16	100.0(82.9-100)	114	136	83.8(76.5-89.6)	1.19(1.11-1.28)
BSCM	13	14	92.9(66.1-99.8)	61	63	96.8(89.0-99.6)	0.96(0.82-1.12)
BSAL	59	66	89.4(79.4-95.6)	549	638	86.1(83.1-88.6)	1.04(0.95-1.14)
BSM	68	80	85.0(75.3-92.0)	347	406	85.5(81.7-88.7)	0.99(0.90-1.09)
BSCtoC	50	64	78.1(66.0-87.5)	292	373	78.3(73.7-82.4)	1.00(0.87-1.15)
BSC	33	38	86.8(71.9-95.6)	245	309	79.3(74.3-83.7)	1.10(0.96-1.26)
BSSL	28	34	82.4(65.5-93.2)	606	703	86.2(83.4-88.7)	0.96(0.82-1.12)
BSHC	2	2	100.0(22.4-100)	171	198	86.4(80.8-90.8)	1.16(1.10-1.23)
Total	**269**	**314**	**85.7(81.3-89.4)**	**2,385**	**2,826**	**84.4(83.0-85.7)**	**1.02(0.97-1.07)**

Ratios below one are unfavourable to Māori.

There is no target for this indicator. Around 85% of both Māori and non-Māori women had a single excisional treatment procedure. There was no difference between Māori and non-Māori women proportions.

4c Proportion of DCIS where no axillary dissection was carried out

Description:

The proportion of women who have surgery for DCIS who do not have an axillary dissection

Target:

>95%

Table 4c: Proportion of DCIS women not having axillary dissection, 7 years (January 2001 to December 2007)

	Māori			Non-Māori			
Lead provider	Number having surgery for DCIS who do not have an axillary dissection	Number. having surgery for DCIS	% of DCIS women not having axillary dissection (95% CI)	Number having surgery for DCIS who do not have an axillary dissection	Number. having surgery for DCIS	% of DCIS women not having axillary dissection (95% CI)	Māori/non-Māori ratio (95% CI)
BSWN	7	7	100.0(65.2-100)	32	33	97.0(84.2-99.9)	1.03(0.97-1.09)
BSCM	2	2	100.0(22.4-100)	21	21	100.0(86.7-100)	1.00(1.00-1.00)
BSAL	27	28	96.4(81.7-99.9)	230	235	97.9(95.1-99.3)	0.99(0.92-1.07)
BSM	14	15	93.3(68.1-99.8)	93	95	97.9(92.6-99.7)	0.95(0.83-1.09)
BSCtoC	8	8	100.0(68.8-100)	55	62	88.7(78.1-95.3)	1.13(1.03-1.23)
BSC	7	7	100.0(65.2-100)	67	67	100.0(95.6-100)	1.00(1.00-1.00)
BSSL	10	11	90.9(58.7-99.8)	169	179	94.4(90.0-97.3)	0.96(0.79-1.16)
BSHC	1	1	100.0(5.0-100)	38	49	77.6(63.4-88.2)	1.29(1.11-1.50)
Total	**76**	**79**	**96.2(89.3-99.2)**	**705**	**741**	**95.1(93.3-96.6)**	**1.01(0.96-1.06)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

The target of over 95% was met for both Māori and non-Māori. There is no evidence of difference between Māori and non-Māori in the proportion of women having surgery for DCIS who did not have an axillary dissection.

4e Proportion of DCIS having breast conserving surgery

Definition:

The proportion of women diagnosed with DCIS of pathological diameter ≤ 20mm who have breast conserving surgery (BCS).

Target:

The majority (>50%) of screen-detected DCIS ≤20mm are treated by BCS.

Table 4e: Proportion of DCIS having BCS, 7 years (January 2001 to December 2007)

	Māori			Non-Māori			
Lead provider	No. of DCIS ≤20mm having BCS	No. of DCIS ≤ 20mm who are operated on	% of DCIS ≤20mm who have BCS (95% CI)	No. of DCIS ≤20mm having BCS	No. of DCIS <= 20mm who are operated on	% of DCIS ≤20mm who have BCS (95% CI)	Māori/non-Māori ratio (95% CI)
BSWN	6	6	100.0(60.7-100.0)	17	20	85.0(62.1-96.8)	1.18(0.98-1.42)
BSCM	0	0	0.0(0.0-100.0)	8	10	80.0(44.4-97.5)	0.00 *
BSAL	16	18	88.9(65.3-98.6)	137	180	76.1(69.2-82.1)	1.17(0.97-1.40)
BSM	9	11	81.8(48.2-97.7)	55	67	82.1(70.8-90.4)	1.00(0.74-1.35)
BSCtoC	2	5	40.0(5.3-85.3)	33	44	75.0(59.7-86.8)	0.53(0.18-1.57)
BSC	4	5	80.0(28.4-99.5)	45	58	77.6(64.7-87.5)	1.03(0.65-1.63)
BSSL	4	5	80.0(28.4-99.5)	104	118	88.1(80.9-93.4)	0.91(0.58-1.42)
BSHC	1	1	100.0(5.0-100)	14	25	56.0(34.9-75.6)	1.79(1.26-2.53)
Total	**42**	**51**	**82.4(69.1-91.6)**	**413**	**522**	**79.1(75.4-82.5)**	**1.04(0.91-1.19)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target. *CI not estimable

Overall the target of screen-detected DCIS ≤20mm treated by BCS was met for both Māori and non-Māori, with no evidence of disparity between Māori and non-Māori.

4f Proportion of invasive cancers having breast conserving surgery

Description:

The proportion of women diagnosed with invasive cancer, without a DCIS component, of pathological diameter ≤20mm who have breast conserving surgery (BCS).

Target:

The majority (> 50%) of screen-detected cancers ≤20mm are treated by BCS

Table 4f: Proportion of invasive cancers ≤20mm, without DCIS, having BCS, 7 years (January 2001-December 2007)

	Māori			Non-Māori			
Lead provider	No. of invasive cancers without DCIS ≤20mm having BCS	No. of invasive cancers without DCIS ≤20mm who are operated on	% of invasive cancers without DCIS ≤20mm who have BCS (95% CI)	No. of invasive cancers, without DCIS ≤20mm having BCS	No. of invasive cancers without DCIS ≤20mm who are operated on	% of invasive cancers, without DCIS ≤20mm who have BCS (95% CI)	Māori/non-Māori ratio (95% CI)
BSWN	3	5	60.0(14.7-94.7)	21	27	77.8(57.7-91.4)	0.77(0.37-1.62)
BSCM	6	6	100.0(60.7-100.0)	12	14	85.7(57.2-98.2)	1.17(0.94-1.45)
BSAL	9	14	64.3(35.1-87.2)	90	123	73.2(64.4-80.8)	0.88(0.59-1.32)
BSM	15	18	83.3(58.6-96.4)	87	106	82.1(73.4-88.8)	1.02(0.81-1.28)
BSCtoC	10	18	55.6(30.8-78.5)	50	76	65.8(54.0-76.3)	0.84(0.54-1.31)
BSC	10	13	76.9(46.2-95.0)	56	77	72.7(61.4-82.3)	1.06(0.76-1.47)
BSSL	4	8	50.0(15.7-84.3)	98	141	69.5(61.2-77.0)	0.72(0.36-1.45)
BSHC	0	0	0.0(0.0-100.0)	36	58	62.1(48.4-74.5)	0.00 *
Total	**57**	**82**	**69.5(58.4-79.2)**	**450**	**622**	**72.3(68.7-75.8)**	**0.96(0.83-1.12)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval includes target. *CI not estimable

Overall, the target of more than 50% of screen-detected cancers ≤20mm treated by breast conserving surgery was met for both Māori and non-Māori, with little difference between the two rates.

4g Proportion of invasive cancers having radiotherapy

Description:

The proportion of women diagnosed with invasive cancer, who have breast conserving surgery (BCS) who go on to have radiotherapy

Target:

≥95%

Table 4g: Proportion of invasive cancers, having BCS and having radiotherapy, 7 years (January 2001-December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of invasive cancers having BCS who have radiotherapy	No. of invasive cancers having BCS	% of invasive cancers having BCS who have radiotherapy (95% CI)	No. of invasive cancers having BCS who have radiotherapy	No. of invasive cancers having BCS	% of invasive cancers, having BCS who have radiotherapy (95% CI)	
BSWN							
BSCM	10	10	100.0(74.1-100.0)	29	36	80.6(64.0-91.8)	1.24(1.06-1.46)
BSAL	33	35	94.3(80.8-99.3)	380	420	90.5(87.3-93.1)	1.04(0.95-1.13)
BSM	45	50	90.0(78.2-96.7)	268	291	92.1(88.4-94.9)	0.98(0.89-1.08)
BSCtoC	36	38	94.7(82.3-99.4)	209	212	98.6(95.9-99.7)	0.96(0.89-1.04)
BSC	20	22	90.9(70.8-98.9)	162	175	92.6(87.6-96.0)	0.98(0.85-1.13)
BSSL	17	18	94.4(72.7-99.9)	371	383	96.9(94.6-98.4)	0.97(0.87-1.09)
BSHC	1	1	100.0(5.0-100.0)	103	117	88.0(80.7-93.3)	1.14(1.07-1.22)
Total	**162**	**174**	**93.1(88.3-96.4)**	**1,522**	**1,634**	**93.1(91.8-94.3)**	**1.00(0.96-1.04)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

Overall the target of 95% or more women diagnosed with invasive cancer, who have breast conserving surgery (BCS) who go on to have radiotherapy was not met for either Māori or non-Māori but was over 90%. There was no difference between Māori and non-Māori in the overall proportions and no significant ratios at Lead Provider level.

Note: Where data are missing in the table above this reflects that the Lead Provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.5).

4h Proportion of DCIS having radiotherapy

Description:

The proportion of women diagnosed solely with DCIS, who have Breast Conserving Surgery (BCS), who go on to have radiotherapy.

Target:

No target.

Table 4h: Proportion of DCIS, having BCS and having radiotherapy 7 years (January 2001-December 2007)

	Māori			Non-Māori			
Lead provider	No. of DCIS, having BCS, who have radiotherapy	No. of DCIS, having BCS	% of DCIS, having BCS, who have radiotherapy (95% CI)	No. of DCIS, having BCS, who have radiotherapy	No. of DCIS, having BCS	% of DCIS, having BCS, who have radiotherapy (95% CI)	Māori/non-Māori ratio (95% CI)
BSWN							
BSCM	0	0	0.0(0.0-100)	8	13	61.5(31.6-86.1)	0.00 *
BSAL	13	24	54.2(32.8-74.4)	84	191	44.0(36.8-51.3)	1.23(0.82-1.84)
BSM	7	10	70.0(34.8-93.3)	54	76	71.1(59.5-80.9)	0.99(0.64-1.52)
BSCtoC	1	2	50.0(1.3-98.7)	12	42	28.6(15.7-44.6)	1.75(0.40-7.58)
BSC	0	4	0.0(0.0-52.7)	14	53	26.4(15.3-40.3)	0.00 *
BSSL	5	10	50.0(18.7-81.3)	66	125	52.8(43.7-61.8)	0.95(0.50-1.80)
BSHC	1	1	100.0(5.0-100.0)	15	22	68.2(45.1-86.1)	1.47(1.10-1.96)
Total	**27**	**51**	**52.9(38.5-67.1)**	**253**	**522**	**48.5(44.1-52.8)**	**1.09(0.83-1.43)**

Ratios below one are unfavourable to Māori. Data from BSWN was excluded as it did not reach the 90% completeness threshold.
*CI not estimable

There is no target for this indicator. Overall, the proportion of women with DCIS that go on to have both BCS and radiotherapy was similar for Māori and non-Māori. Numbers are low for Māori.

Note: Where data are missing in the table above this reflects that the Lead Provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.5).

4i Proportion of invasive cancers having chemotherapy

Description:

The proportion of women diagnosed with invasive cancer who have chemotherapy, reported by disease character groups.

Table 4i: The proportion of women with invasive cancers who have chemotherapy, by disease character group, 7 years (January 2001-December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of invasive cancers, in group having chemo-therapy	No. of invasive cancers, in group	% of invasive cancers, in group, having chemotherapy	No. of invasive cancers, in group, having chemo-therapy	No. of invasive cancers, in group	% of invasive cancers, in group having chemotherapy	
Group 1: Node positive, ER/PR negative							
BSWN	0	0	0.0(0-100)	2	3	66.7(9.4-99.2)	0.00 *
BSCM	0	0	0.0(0-100)	5	5	100.0(54.9-100)	0.00 *
BSAL	1	1	100.0(5-100)	22	25	88.0(68.8-97.5)	1.14(0.99-1.32)
BSM	3	3	100.0(36.8-100)	14	18	77.8(52.4-93.6)	1.29(1.01-1.65)
BSCtoC	0	0	0.0(0-100)	7	10	70.0(34.8-93.3)	0.00 *
BSC	2	3	66.7(9.4-99.2)	14	15	93.3(68.1-99.8)	0.71(0.32-1.60)
BSSL	0	0	0.0(0-100)	20	23	87.0(66.4-97.2)	0.00 *
BSHC	0	0	0.0(0-100)	8	9	88.9(51.8-99.7)	0.00 *
Total	**6**	**7**	**85.7(42.1-99.6)**	**92**	**108**	**85.2(77.1-91.3)**	**1.01(0.74-1.38)**
Group 2: Node negative, high risk, and ER/PR negative							
BSWN	0	0	0.0(0-100)	13	16	81.3(54.4-96.0)	0.00 *
BSCM	0	1	0.0(0-95.0)	3	8	37.5(8.5-75.5)	0.00 *
BSAL	5	7	71.4(29-96.3)	23	44	52.3(36.7-67.5)	1.37(0.79-2.37)
BSM	1	1	100.0(5-100)	16	39	41.0(25.6-57.9)	2.44(1.67-3.55)
BSCtoC	1	2	50.0(1.3-98.7)	8	23	34.8(16.4-57.3)	1.44(0.32-6.42)
BSC	2	2	100.0(22.4-100)	9	40	22.5(10.8-38.5)	4.44(2.50-7.89)
BSSL	0	1	0.0(0-95.0)	27	68	39.7(28-52.3)	0.00 *
BSHC	0	0	0.0(0-100)	13	22	59.1(36.4-79.3)	0.00 *
Total	**9**	**14**	**64.3(35.1-87.2)**	**112**	**260**	**43.1(37-49.3)**	**1.49(0.98-2.26)**
Group 3: Node positive, either ER or PR positive							
BSWN	1	3	33.3(0.8-90.6)	5	17	29.4(10.3-56.0)	1.13(0.19-6.58)
BSCM	1	3	33.3(0.8-90.6)	5	9	55.6(21.2-86.3)	0.60(0.11-3.30)
BSAL	6	12	50.0(21.1-78.9)	41	99	41.4(31.6-51.8)	1.21(0.66-2.23)
BSM	14	26	53.8(33.4-73.4)	51	90	56.7(45.8-67.1)	0.95(0.64-1.42)
BSCtoC	7	15	46.7(21.3-73.4)	36	72	50.0(38.0-62.0)	0.93(0.52-1.67)
BSC	3	5	60.0(14.7-94.7)	35	55	63.6(49.6-76.2)	0.94(0.45-1.98)
BSSL	6	14	42.9(17.7-71.1)	73	134	54.5(45.7-63.1)	0.79(0.42-1.47)
BSHC	0	2	0.0(0-77.6)	27	45	60.0(44.3-74.3)	0.00 *
Total	**38**	**80**	**47.5(36.2-59.0)**	**273**	**521**	**52.4(48-56.8)**	**0.91(0.71-1.16)**

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of invasive cancers, in group having chemo-therapy	No. of invasive cancers, in group	% of invasive cancers, in group, having chemotherapy	No. of invasive cancers, in group, having chemo-therapy	No. of invasive cancers, in group	% of invasive cancers, in group having chemotherapy	
Group 4: Node negative, high risk-either ER or PR positive							
BSWN	0	6	0.0(0-39.3)	1	44	2.3(0.1-12)	0.00 *
BSCM	0	5	0.0(0-45.1)	2	22	9.1(1.1-29.2)	0.00 *
BSAL	2	20	10.0(1.2-31.7)	6	179	3.4(1.2- 7.2)	2.98(0.64-13.79)
BSM	2	31	6.5(0.8-21.4)	16	140	11.4(6.7- 17.9)	0.56(0.14-2.31)
BSCtoC	0	20	0.0(0-13.9)	9	109	8.3(3.8- 15.1)	0.00 *
BSC	0	13	0.0(0-20.6)	4	94	4.3(1.2- 10.5)	0.00 *
BSSL	1	14	7.1(0.2-33.9)	14	273	5.1(2.8- 8.5)	1.39(0.20-9.83)
BSHC	0	0	0.0(0-100)	5	56	8.9(3.0- 19.6)	0.00 *
Total	**5**	**109**	**4.6(1.5-10.4)**	**57**	**917**	**6.2(4.7- 8.0)**	**0.74(0.30-1.81)**

*CI not estimable

The ratios were not significant, most likely due to small absolute numbers for Māori.

4j Proportion of women with invasive cancer having endocrine therapy

Description:

The proportion of women diagnosed with invasive cancer who have endocrine therapy reported by disease character group.

Table 4j: Proportion of women diagnosed with invasive cancer who had endocrine therapy by disease character group, 7 years (January 2001 to December 2007)

	Māori			Non-Māori			
Lead provider	No. of invasive cancers, in group having endocrine therapy	No. of invasive cancers, in group	% of invasive cancers, in group, having endocrine therapy	No. of invasive cancers, in group, having endocrine therapy	No. of invasive cancers, in group	% of invasive cancers, in group having endocrine therapy	Māori/non-Māori ratio (95% CI)
Group 1: Node positive, ER/PR positive							
BSWN				17	17	100.0(83.8-100.0)	
BSCM				8	9	88.9(51.8-99.7)	
BSAL	11	12	91.7(61.5-99.8)	88	99	88.9(81.0-94.3)	1.03(0.86-1.24)
BSM	23	26	88.5(69.8-97.6)	78	90	86.7(77.9-92.9)	1.02(0.87-1.20)
BSCtoC	9	15	60.0(32.3-83.7)	32	72	44.4(32.7-56.6)	1.35(0.83-2.20)
BSC	3	5	60.0(14.7-94.7)	24	55	43.6(30.3-57.7)	1.38(0.64-3.00)
BSSL							
BSHC	0	2	0.0(0.0-77.6)	18	45	40.0(25.7-55.7)	0.00 *
Total	**46**	**60**	**76.7(64.0-86.6)**	**240**	**361**	**66.5(61.4-71.3)**	**1.15(0.98-1.35)**
Group 2: Node negative, high risk, and ER/PR positive							
BSWN				34	44	77.3(62.2-88.5)	
BSCM				12	22	54.5(32.2-75.6)	
BSAL	16	20	80.0(56.3-94.3)	126	179	70.4(63.1-77.0)	1.14(0.90-1.45)
BSM	27	31	87.1(70.2-96.4)	121	140	86.4(79.6-91.6)	1.01(0.87-1.17)
BSCtoC	9	20	45.0(23.1-68.5)	41	109	37.6(28.5-47.4)	1.20(0.70-2.06)
BSC	6	13	46.2(19.2-74.9)	38	94	40.4(30.4-51.0)	1.14(0.60-2.15)
BSSL							
BSHC	0	0	0.0(0.0-100.0)	19	56	33.9(21.8-47.8)	0.00 *
Total	**58**	**84**	**69.0(58.0-78.7)**	**345**	**578**	**59.7(55.6-63.7)**	**1.16 (0.99-1.36)**
Group 3: Node negative, low risk, either ER or PR positive							
BSWN				42	96	43.8(33.6-54.3)	
BSCM				12	37	32.4(18.0-49.8)	
BSAL	18	35	51.4(34.0-68.6)	152	301	50.5(44.7-56.3)	1.02(0.73-1.43)
BSM	45	50	90.0(78.2-96.7)	215	254	84.6(79.6-88.8)	1.06(0.95-1.18)
BSCtoC	13	31	41.9(24.5-60.9)	62	177	35.0(28.0-42.5)	1.20(0.76-1.90)
BSC	10	28	35.7(18.6-55.9)	74	193	38.3(31.5-45.6)	0.93(0.55-1.58)
BSSL							
BSHC	0	0	0.0	27	112	24.1(16.5-33.1)	0.00 *
Total	**86**	**144**	**59.7(51.2-67.8)**	**530**	**1,037**	**51.1 (48.0-54.2)**	**1.17(1.01-1.35)**

*CI not estimable. Data for BSSL is not included in this table due to a known extract data issue with one field. Data for Māori women in BSWN and BSCM is excluded because the data completeness did not meet the 90% completeness threshold.

Among women with invasive cancers characterised as Node negative, high risk, and ER/PR positive (Group 2) or Node negative, low risk, either ER or PR positive (Group 3), Māori women were 62% more likely than non-Māori women to receive endocrine therapy.

SECTION 5: PROVISION OF AN APPROPRIATE AND ACCEPTABLE SERVICE

5a Time taken for provision of screening results

Description:

The time since screening that it takes for a woman to be sent the results of her mammogram.

Target:

90-95% notified within 10 working days.

Table 5a: Percentage of women notified of screening results within 10 working days, 2 years (January 2006 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of women notified within 10 working days	No. of women screened	% notified within 10 working days (95% CI)	No. of women notified within 10 working days	No. of women screened	% notified within 10 working days (95% CI)	
BSWN	2,316	2,576	89.9(88.7-91.0)	26,474	29,474	89.8(89.5-90.2)	1.00(0.99-1.01)
BSCM	1,712	1,832	93.4(92.2-94.5)	15,267	16,242	94.0(93.6-94.4)	0.99(0.98-1.00)
BSAL	795	838	94.9(93.2-96.3)	14,015	14,706	95.3(94.9-95.6)	1.00(0.98-1.02)
BSM	3,225	3,429	94.1(93.2-94.8)	27,750	28,785	96.4(96.2-96.6)	0.98(0.97-0.99)
BSCtoC	2,586	2,630	98.3(97.8-98.8)	25,980	26,438	98.3(98.1-98.4)	1.00(0.99-1.01)
BSC	1,345	1,469	91.6(90.0-92.9)	20,922	22,791	91.8(91.4-92.2)	1.00(0.98-1.02)
BSSL	1,637	1,653	99.0(98.4-99.4)	49,035	49,447	99.2(99.1-99.2)	1.00(1.00-1.00)
BSHC	469	519	90.4(87.5-92.8)	15,788	17,291	91.3(90.9-91.7)	0.99(0.96-1.02)
Total	**14,085**	**14,946**	**94.2(93.9-94.6)**	**195,231**	**205,174**	**95.2(95.1-95.2)**	**0.99(0.99-0.99)**

Ratios below one are unfavourable to Māori.

Overall the target of 90% of women notified of screening results within 10 working days was met for both Māori and non-Māori. There was no difference between Māori and non-Māori.

5b Time taken from screening visit to first offer of an assessment

Description:

The time between screening and the earliest appointment date the woman is offered for assessment. In some cases this date may not coincide with the actual date of assessment due to the fact that many women arrange for a time that suits them better.

Target:

90% offered an assessment appointment within 15 working days.

Table 5b: Percentage of women offered first assessment appointment within 15 working days, 2 years (January 2006 to December 2007) and 7 years (January 2001 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of women offered assessment within 15 working days	No. of women referred to assessment	% of women referred to assessment (95% CI)	No. of women offered assessment within 15 working days	No. of women referred to assessment	% of women referred to assessment (95% CI)	
2 years (Jan 2006 to Dec 2007)							
BSWN	96	159	60.4(52.3-68.0)	930	1,360	68.4(65.8-70.8)	0.88(0.97-1.00)
BSCM	78	114	68.4(59.1-76.8)	629	854	73.7(70.6-76.6)	0.93(0.82-1.06)
BSAL	40	49	81.6(68.0-91.2)	530	634	83.6(80.5-86.4)	0.98(0.85-1.12)
BSM	168	204	82.4(76.4-87.3)	1,115	1,281	87.0(85.1-88.8)	0.95(0.89-1.02)
BSCtoC	92	122	75.4(66.8-82.8)	640	797	80.3(77.4-83.0)	0.94(0.84-1.05)
BSC	66	79	83.5(73.5-90.9)	821	973	84.4(81.9-86.6)	0.99(0.89-1.10)
BSSL	69	72	95.8(88.3-99.1)	1,421	1,486	95.6(94.5-96.6)	1.00(0.95-1.05)
BSHC	5	15	33.3(11.8-61.6)	312	668	46.7(42.9-50.6)	0.71(0.35-1.46)
Total	**614**	**814**	**75.4(72.3-78.4)**	**6,398**	**8,053**	**79.4(78.5-80.3)**	**0.95(0.95-0.99)**
7 years (Jan 2001 to Dec 2007)							
BSWN	96	159	60.4(52.3-68.0)	930	1,360	68.4(65.8-70.8)	0.88(0.77-1.00)
BSCM	82	123	66.7(59.1-76.8)	693	922	75.2(70.6-76.6)	0.89(0.78-1.01)
BSAL	560	682	82.1(68.0-91.2)	6,011	7,016	85.7(80.5-86.4)	0.96(0.93-1.00)
BSM	548	639	85.8(76.4-87.3)	3,897	4,433	87.9(85.1-88.8)	0.98(0.95-1.01)
BSCtoC	295	401	73.6(66.8-82.8)	2,443	3,084	79.2(77.4-83.0)	0.93(0.87-0.99)
BSC	239	310	77.1(73.5-90.9)	3,053	3,767	81.0(81.9-86.6)	0.95(0.89-1.01)
BSSL	273	286	95.5(88.3-99.1)	7,156	7,478	95.7(94.5-96.6)	1.00(0.97-1.03)
BSHC	32	53	60.4(11.8-61.6)	1,182	1,962	60.2(42.9-50.6)	1.00(0.80-1.25)
Total	**2,125**	**2,653**	**80.1(72.3-78.4)**	**25,365**	**30,022**	**84.5(78.5-80.3)**	**0.95(0.93-0.97)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

Overall, the target of 90% was not met for either Māori or non-Māori. In the two year period (January 2006 to December 2007), 75% of Māori women were offered an assessment within 15 working days, compared to 79% of non-Māori women. The only provider that attained the targets for both Māori and non-Māori was BSSL.

In the 7 year period (January 2001 to December 2007), 80% of Māori women were offered an assessment in a timely manner compared to 85% of non-Māori women. Ratios were not significant.

5c Time taken from assessment to final diagnostic biopsy

Description:

The time between first level assessment and the final assessment procedure producing a diagnosis.

Targets:

At least 90% of women requiring **needle biopsy** have that procedure completed within **five working** days of their assessment.

At least 90% of women requiring **open biopsy** should have this performed within **15 working days** of being notified of the need for this operation.

Table 5c.1: Women receiving needle biopsy within 5 working days of assessment, 2 years (January 2006 to December 2007) and 7 years (January 2001 to December 2007)

	Māori			Non-Māori			
Lead provider	Needle biopsies within 5 days of assessment	Total needle biopsies	% of needle biopsies (95% CI)	Needle biopsies within 5 days of assessment	Total needle biopsies	% of needle biopsies (95% CI)	Māori/non-Māori ratio (95% CI)
2 years (Jan 2006 to Dec 2007)							
BSWN	69	70	98.6(92.3-100.0)	457	470	97.2(95.3-98.5)	1.01(0.98-1.04)
BSCM	44	46	95.7(85.2-99.5)	245	264	92.8(89.0-95.6)	1.03(0.96-1.10)
BSAL	21	24	87.5(67.6-97.3)	226	258	87.6(82.9-91.4)	1.00(0.85-1.17)
BSM	74	88	84.1(74.8-91.0)	335	395	84.8(80.9-88.2)	0.99(0.90-1.09)
BSCtoC	65	66	98.5(91.8-100)	273	278	98.2(95.9-99.4)	1.00(0.97-1.03)
BSC	34	35	97.1(85.1-99.9)	232	248	93.5(89.7-96.3)	1.04(0.97-1.11)
BSSL	38	42	90.5(77.4-97.3)	460	537	85.7(82.4-88.5)	1.06(0.96-1.18)
BSHC	3	4	75.0(19.4-99.4)	142	153	92.8(87.5-96.4)	0.81(0.46-1.43)
Total	**348**	**375**	**92.8(89.7-95.2)**	**2,370**	**2,603**	**91.0(89.9-92.1)**	**1.02(0.99-1.05)**
7 years (Jan 2001 to Dec 2007)							
BSWN	69	70	98.6(92.3-100.0)	457	470	97.2(95.3-98.5)	1.01(0.98-1.04)
BSCM	47	49	95.9(86.0-99.5)	263	284	92.6(88.9-95.4)	1.04(0.97-1.11)
BSAL	297	351	84.6(80.4-88.2)	2,287	2,893	79.1(77.5-80.5)	1.07(1.02-1.12)
BSM	238	289	82.4(77.5-86.6)	1,217	1,448	84.0(82.1-85.9)	0.98(0.92-1.04)
BSCtoC	190	209	90.9(86.2-94.4)	956	1,043	91.7(89.8-93.3)	0.99(0.94-1.020
BSC	117	126	92.9(86.9-96.7)	1,036	1,110	93.3(91.7-94.7)	0.99(0.94-1.04)
BSSL	129	143	90.2(84.1-94.5)	2,272	2,719	83.6(82.1-84.9)	1.08(1.02-1.14)
BSHC	16	19	84.2(60.4-96.6)	490	529	92.6(90.1-94.7)	0.91(0.75-1.11)
Total	**1,103**	**1,256**	**87.8(85.9-89.6)**	**8,978**	**10,496**	**85.5(84.8-86.2)**	**1.03(1.01-1.05)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target..

In the two-year period, the target of 90% was met overall for both Māori and non-Māori women. There was no significant disparity between Māori and non-Māori women in the timeliness of needle biopsy receipt.

Table 5c.2: Women receiving open biopsy procedure within 15 working days of notification of the need for the operation, 2 years (January 2006 to December 2007) and 7 years (January 2001 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Open biopsies within 15 working days of notification	Total open biopsies	% of open biopsies (95% CI)	Open biopsies within 15 working days of notification	Total open biopsies	% of open biopsies (95% CI)	
2 years (Jan 2006 to Dec 2007)							
BSWN	2	5	40.0(5.3-85.3)	24	38	63.2(46.0-78.2)	0.63(0.21-1.89)
BSCM	3	3	100.0(36.8-100)	22	22	100.0(87.3-100)	1.00(1.00-1.00)
BSAL	1	1	100.0(5.0-100.0)	23	31	74.2(55.4-88.1)	1.35(1.10-1.66)
BSM	0	4	0.0(0.0-52.7)	12	32	37.5(21.1-56.5)	0.00 *
BSCtoC	0	4	0.0(0.0-52.7)	6	15	40.0(16.3-67.7)	0.00 *
BSC	3	4	75.0(19.4-99.4)	11	23	47.8(26.8-69.4)	1.57(0.77-3.19)
BSSL	2	2	100.0(22.4-100)	30	33	90.9(75.7-98.1)	1.10(0.99-1.23)
BSHC	2	2	100.0(22.4-100)	31	35	88.6(73.3-96.8)	1.13(1.00-1.27)
Total BSA	**13**	**25**	**52.0(31.3-72.2)**	**159**	**229**	**69.4(63.0-75.3)**	**0.75(0.51-1.10)**
7 years (Jan 2001 to Dec 2007)							
BSWN	2	5	40.0(5.3-85.3)	24	38	63.2(46.0-78.2)	0.63(0.21-1.89)
BSCM	4	4	100.0(47.3-100.0)	23	23	100.0(87.8-100)	1.00(1.00-1.00)
BSAL	20	25	80.0(59.3-93.2)	254	329	77.2(72.3-81.6)	1.04(0.85-1.28)
BSM	5	18	27.8(9.7-53.5)	75	144	52.1(43.6-60.5)	0.53(0.25-1.13)
BSCtoC	0	13	0.0(0.0-20.6)	35	75	46.7(35.1-58.6)	0.00 *
BSC	7	9	77.8(40.0-97.2)	106	150	70.7(62.7-77.8)	1.10(0.76-1.58)
BSSL	9	9	100.0(71.7-100.0)	155	177	87.6(81.8-92.0)	1.14(1.08-1.21)
BSHC	3	4	75.0(19.4-99.4)	105	140	75.0(67.0-81.9)	1.00(0.56-1.78)
Total BSA	**50**	**87**	**57.5(46.4-68.0)**	**777**	**1,076**	**72.2(69.4-74.9)**	**0.80(0.67-0.96)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target. *CI not estimable

During the 2-year period, only 52% of Māori women and 69% of non-Māori women requiring open biopsies received their operation within 15 working days of notification, considerably less than the target of 90%. Most individual providers did not meet the target, largely affecting the overall rate. Seven year rates differed only slightly, with 58% of Māori women and 72% of non-Māori women receiving their biopsies in a timely manner, (a significant difference).

5d Time taken from final diagnostic biopsy to reporting assessment results

Description:

The time taken from the final biopsy procedure to reporting the diagnosis to the women.

Target:

Results reported to at least 90% of women within five working days of final diagnostic biopsy.

Table 5d: Percentage of women receiving final diagnostic biopsy results within 5 working days, 2 years (January 2006 to December 2007) and 7 years (January 2001 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Results reported within 5 working days of final biopsy	Number with final diagnostic biopsy	% received final biopsy results within 5 working days (95% CI)	Results reported within 5 working days of final biopsy	Number with final diagnostic biopsy	% received final biopsy results within 5 working days (95% CI)	
2 years (Jan 2006 to Dec 2007)							
BSWN	60	81	74.1(63.1-83.2)	400	493	81.1(77.4-84.5)	0.91(0.79-1.04)
BSCM	41	47	87.2(74.3-95.2)	223	266	83.8(78.8-88.0)	1.04(0.92-1.17)
BSAL	23	25	92.0(74.0-99.0)	226	262	86.3(81.5-90.2)	1.07(0.94-1.21)
BSM	69	89	77.5(67.4-85.7)	320	402	79.6(75.3-83.4)	0.97(0.86-1.10)
BSCtoC	57	66	86.4(75.7-93.6)	239	278	86.0(81.3-89.8)	1.00(0.90-1.11)
BSC	30	35	85.7(69.7-95.2)	203	251	80.9(75.5-85.6)	1.06(0.91-1.23)
BSSL	39	42	92.9(80.5-98.5)	528	540	97.8(96.2-98.8)	0.95(0.87-1.03)
BSHC	5	5	100.0(54.9-100.0)	142	164	86.6(80.4-91.4)	1.15(1.08-1.22)
Total BSA	**324**	**390**	**83.1(79.0-86.7)**	**2,281**	**2,656**	**85.9(84.5-87.2)**	**0.97(0.93-1.02)**
7 years (Jan 2001 to Dec 2007)							
BSWN	60	81	74.1(63.1-83.2)	400	493	81.1(77.4-84.5)	0.91(0.79-1.04)
BSCM	41	50	82.0(68.6-91.4)	239	287	83.3(78.4-87.4)	0.98(0.85-1.13)
BSAL	269	356	75.6(70.8-79.9)	2,500	2,974	84.1(82.7-85.4)	0.90(0.85-0.96)
BSM	221	292	75.7(70.3-80.5)	1,149	1,468	78.3(76.1-80.4)	0.97(0.90-1.04)
BSCtoC	186	211	88.2(83.0-92.2)	929	1,057	87.9(85.8-89.8)	1.00(0.95-1.06)
BSC	114	127	89.8(83.1-94.4)	965	1,120	86.2(84.0-88.1)	1.04(0.98-1.11)
BSSL	137	143	95.8(91.1-98.4)	2,652	2,730	97.1(96.4-97.7)	0.99(0.96-1.03)
BSHC	20	22	90.9(70.8-98.9)	513	575	89.2(86.4-91.6)	1.02(0.89-1.17)
Total BSA	**1,048**	**1,282**	**81.7(79.5-83.8)**	**9,347**	**10,704**	**87.3(86.7-87.9)**	**0.94(0.92-0.97)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target.

During the 2-year period from January 2001 to December 2007, 83% of Māori women and 86% of non-Māori women received their final biopsy results within 5 working days. This was below the desired target of 90%.

There was little difference in overall rates between the 7-year period and the 2-year period.

5e First surgical treatment within 20 working days

Description:

The time from when a woman receives her final diagnostic results to the date of her first surgical treatment.

Target:

90% of women should normally receive their first surgical treatment within 20 working days of receiving their final diagnostic results. Note that in 2005 this target changed from 15 working days to 20 working days.

Table 5e: Proportion of women receiving timely surgical treatment, 7 years (January 2001 to December 2007)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	First surgical treatment within 20 working days	Total number having surgery	% receiving first surgery within 20 working days (95% CI)	First surgical treatment within 20 working days	Total number having surgery	% receiving first surgery within 20 working days (95% CI)	
BSWN	17	24	70.8(48.9-87.4)	135	173	78.0(71.1-84.0)	0.91(0.70-1.19)
BSCM	4	16	25.0(7.3-52.4)	33	89	37.1(27.1-48.0)	0.67(0.27-1.63)
BSAL	42	94	44.7(34.4-55.3)	537	906	59.3(56.0-62.5)	0.75(0.60-0.95)
BSM	59	97	60.8(50.4-70.6)	350	519	67.4(63.2-71.5)	0.90(0.76-1.07)
BSCtoC	42	72	58.3(46.1-69.8)	343	446	76.9(72.7-80.7)	0.76(0.62-0.93)
BSC	31	46	67.4(52.0-80.5)	314	398	78.9(74.6-82.8)	0.85(0.69-1.05)
BSSL	32	46	69.6(54.2-82.3)	695	901	77.1(74.3-79.8)	0.90(0.74-1.09)
BSHC	1	3	33.3(0.8-90.6)	202	253	79.8(74.4-84.6)	0.42(0.08-2.08)
Total	**228**	**398**	**57.3(52.3-62.2)**	**2,609**	**3,685**	**70.8(69.3-72.3)**	**0.81(0.74-0.88)**

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target..

During the 7-year period January 2001 to December 2007, only 57% of Māori women received surgery within 20 working days of receiving their final diagnostic results compared to 71% of non-Māori women. Both were well below the target of 90%.

All providers were below the target for both Māori and non-Māori women. Both BSHC and BSCM had the lowest proportions of Māori women receiving timely surgical treatment, although BSHC had very small numbers for Māori (only 3 individuals in this time period).

APPENDIX A: POPULATION DENOMINATORS

The eligible populations in these reports have been calculated from projected resident populations in each lead provider district, provided by Statistics New Zealand. The projections are based on the 2001 New Zealand Census, assuming medium fertility, medium mortality, medium inter-ethnic mobility and medium migration.

The 2007 projected population (as at December 2007) has been used. This is the same population that is used for all BSA quality and contract monitoring for the period July 2006 to June 2006.

Table A2: Population projections 2007 by ethnicity, women aged 50–64 years

Lead Provider	Māori	Non-Māori	Total
BSWN	5,360	52,225	57,585
BSCM	3,900	30,680	34,580
BSAL	2,050	30,650	32,700
BSM	8,930	47,315	56,245
SCtoC	6,715	40,625	47,340
BSC	2,990	35,020	38,010
BSSL	2,430	61,135	63,565
BSHC	1,055	24,300	25,355
BSA Total	33,430	321,950	355,380

APPENDIX B: GLOSSARY OF TERMS

Assessment
A follow-up investigation if something of concern is seen on a mammogram.

Assessment rate
Number of women referred to assessment as a percentage of all women screened.

Asymptomatic
Women who do not have symptoms of breast cancer.

Axillary lymph nodes
Lymph nodes located in the armpits.

BCS
Breast conserving surgery

Biopsy
A sample of a breast abnormality, or the whole abnormality, is removed and examined under a microscope by a pathologist to determine whether it is cancer.

Benign biopsy weight
The weight of the open biopsy specimen presented to the pathologist.

Benign biopsy rate
Number of open biopsies that turn out to be benign lesions, expressed as a proportion of women screened.

BSA
BreastScreen Aotearoa.

Coverage
Population-based measure of the percentage of women in the target age group (45-49, 50-64, 65-69 years) who have had a screening mammogram in the programme.

ER
Estrogen Receptor

False negative
A negative screening test result in a woman who actually does have cancer at the time the screening is conducted.

False positive result
The proportion of women recalled to assessment, but after assessment are found not to have cancer.

FNAC
Fine needle aspiration cytology

IMMG
Independent Māori Monitoring Group

IMMR
Independent Māori Monitoring Report

Initial screen
A woman's first screening mammogram at any BSA Lead Provider.

Lead Provider
A service provider who contracts with the National Screening Unit to provide services purchased as a result of the *Request for Proposal*. This term encompasses those individuals or organisations who act as a nominee, agent or subcontracted provider to a Lead Provider.

MAG
Māori advisory Group

Negative predictive value (NPV)
The proportion of women screened negative who are ultimately diagnosed as not having cancer.

Node negative
Axillary lymph nodes (in armpit) do not contain cancer cells

Node positive
Axillary lymph nodes (in armpit) contain cancer cells

Positive predictive value (PPV)
The proportion of women screened positive who are ultimately diagnosed as having cancer.

PR
Progesterone receptor

Pre-operative diagnosis rate
Number of women for whom a needle biopsy provides the definitive diagnosis (pre-operative diagnosis), as a percentage of all women diagnosed with breast cancer in the programme.

Rescreen
A screening mammogram undertaken two years after the previous screen. In this report, rescreen refers to women who returned for screening within 27 months following their previous screen.

Sensitivity
The proportion of truly diseased persons in the screened population who are identified as diseased by the screening test. Sensitivity is a measure of the probability of correctly diagnosing a case, or the probability that any given case will be identified by the test.

Specificity
The proportion of women without breast cancer at screening who have a negative screen result. This is estimated by expressing the number of women who have a negative screen result as a percentage of all women screened excluding the women screened positive with cancer.

Subsequent screen
A woman's screening mammogram at a BSA Lead Provider when she has previously attended BSA.

Technical recall rate

Number of women who have to return to a screening unit (either Fixed or Mobile) for further films to complete their screening episode, expressed as a percentage of the number screened.

Technical reject rate
Number of films rejected as a percentage of the number of films taken, calculated separately for women who are screened in a fixed unit and a mobile unit.