Independent Māori Monitoring Report 1
BreastScreen Aotearoa
July 2004 to June 2006
50–64 years

A report prepared by
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for BreastScreen Aotearoa

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Cover artwork by Chamblett Design

"The moko kauae patterns represent the many wahine that breast screening involves and affects. They are composed in a vertical direction to show ascendancy & positivity. The main moko kauae (shown in white) represents this report. The words 'Ki Mua Ki Muri' tell us that by learning from our past (mua) we can prepare for the future (muri). Therefore the preventative action that is taken in the present time is crucial. Breast screening is our way to prepare for the future."

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TE RŌPŪ RANGAHAU HAUORA A ERU PŌMARE

UNIVERSITY of OTAGO
SAPERE AUDE
Te Whare Wānanga o Otāgo
NEW ZEALAND

HE MIHI

E rau rangatira mā, tēnā koutou i roto i ngā ahuatanga o tēnei wā. He mihi tēnei ki a koutou e noho mai i ngā tōpito o te motu. Ko te whainga o tēnei pūrongo, kia riro i ngā wāhine Māori he tirohanganui i roto i te rautaki "He Ara Maru Ū". Ko te wawata kia piki te hauora i ngā wāhine katoa, otirā, i ngā whānau katoa o te motu, kia puta ai te tihei mauriora!

Nā Mina Timutimu
Māori Advisory Group member, National Screening Unit

FOREWORD

Regular mammographic screening can significantly reduce the chance of mortality from breast cancer in women. This has been shown by randomised controlled trials and evaluation of screening programmes internationally. BreastScreen Aotearoa (BSA) began screening New Zealand women aged 50 to 64 in 1999, with the goal to reduce breast cancer deaths in the eligible population by thirty percent. In July 2004 the programme was expanded to include women 45 to 69 years of age.

To ensure BSA fulfils this goal the National Screening Unit (NSU) commissions independent monitoring to evaluate the effectiveness of the Programme against national targets.

Effective screening

Breast cancer can be a slowly progressive disease with some deaths occurring fifteen or more years after diagnosis. Therefore it can take this long to demonstrate whether a screening programme is achieving the desired reduction in breast cancer deaths.

It follows that, for at least the first 15 years of the programme, it is necessary to monitor interim or "surrogate" outcomes to ensure that screening is of sufficient quality to reduce mortality. The most important of these surrogate mortality indicators are:

- The rate and proportion of small invasive cancers detected in subsequent screens
- The rate and proportion of node-negative invasive cancers detected in subsequent screens
- The prompt receipt of high quality treatment.

If these performance indicators are met, then women who take part in BSA can be assured that the screening and follow-up tests (assessment) are equivalent to the best available internationally.

While BSA performance of this quality is necessary to reduce the likelihood of breast cancer deaths in individual BSA women, it is not sufficient to achieve this in the total eligible population, which includes both screened and unscreened women. To achieve a 30% reduction in breast cancer deaths overall, 70% of eligible women must be screened every two years.

Harms of screening

Screening mammography is a routine breast x-ray of women without breast symptoms in order to detect changes that could be breast cancer. Assessment using additional diagnostic investigations

(further mammography, ultrasound and needle biopsy) reveals cancer in about 8 of 1000 screened women who are then referred for treatment.

Diagnostic mammography, on the other hand, is a breast x-ray directed to the area of concern in order to provide a diagnosis for women who already have a breast problem. This difference between screening and diagnostic mammography has a number of consequences:

1. Symptoms are an important cue to how a medical radiation technologist (MRT) performs a mammogram, and to how it is read by a radiologist. The absence of these cues with screening increases the difficulty of interpretation and necessitates high quality mammography and high quality radiologist reading skills in order to maximise the number of unsuspected cancers detected.

2. Approximately 96% of screened women do not have breast cancer, yet as with all screening tests, every screened woman suffers some harm. These costs are minor in most women, such as time off work and having a mammogram every two years. However some women may undergo additional testing which proves unnecessary because they do not have cancer (false positives). It is also likely that a very small number of women have non-progressive cancers diagnosed and treated that would not otherwise have resulted in those women dying (benign open biopsies). These are important indicators of harm to women participating in BSA.

Screening mammography is the most effective known means of reducing the chance of death caused by breast cancer for normal risk women. However, because only a small proportion of the population die of breast cancer, the ratio of benefits (lives saved from breast cancer) to harm of population screening is small. Ensuring that these "harms" are outweighed by the benefits of screening mammography is the combined function of the National Screening Unit's monitoring of BreastScreen Aotearoa and the quality improvement activities of screening providers.

Monitoring the performance of services to all women participating in BSA has occurred since 2000, but this is the first report to look at the delivery of BSA services to Māori women. Compared to non-Māori, Māori women have a slightly increased risk of being diagnosed with breast cancer, but a disproportionately greater risk of dying from this disease.

Research shows that this is mainly due to delay of diagnosis and subsequent treatment. These women can potentially benefit the most from regular mammographic screening. However, the benefit will only occur if BSA services to Māori women are of appropriate quality. The NSU therefore welcomes this first Independent Māori Monitoring Report, which identifies areas where services vary between Māori and non-Māori. This will enable all providers to target service improvements to those women who are currently at greater risk, and for BreastScreen Aotearoa to achieve equal outcomes for all women irrespective of ethnicity.

Madeleine Wall
Clinical Leader
BreastScreen Aotearoa

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OVERVIEW AND RECOMMENDATIONS

Breast cancer is the most common cancer diagnosed among women in New Zealand. Screening aims to detect cancers at an early stage when tumours are more amenable to treatment and evidence shows that 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 45-69 years and plays a crucial part in reducing breast cancer mortality.

There are substantial disparities in survival from breast cancer between Māori and non-Māori women. These inequalities could be greatly reduced if more Māori women were diagnosed an earlier stage. BreastScreen Aotearoa therefore plays a key role in eliminating inequities and improving breast cancer outcomes for Māori women. This report was commissioned to measure the quality of BSA services for Māori women and to monitor any disparities in performance. Data used in this report has been collected to measure against indicators and targets developed by NSU to monitor the quality of the breast screening programme.

The report reveals low coverage for Māori women in BSA overall and in most Lead Provider regions. Significantly higher coverage was achieved for non-Māori women. BreastScreen South successfully increased coverage for Māori women during the 2002 to 2004 period. Other providers may benefit from the sharing of any transferable strategies for increasing Māori coverage. Re-screening rates were lower for Māori women than for non-Māori women, affecting overall coverage. However, among those who were re-screened within 27 months, the proportion screened within 20-24 months was within target.

In fixed screening sites and in mobile screening sites, Māori women were more likely than non-Māori women to have more than 4 films taken and more likely to be recalled for technical reasons. The targets for these indicators were not met for Māori women but were met for non-Māori women.

Referrals for further assessment were more common among Māori women, but this appears to be justified by higher cancer detection rates and higher positive predictive values. False positive rates and total specificity rates were also within the target range for Māori women. The proportion of cancers diagnosed by needle biopsy was on target for Māori and non-Māori women. The proportion of benign open biopsies was higher for Māori than for non-Māori but within the target. However, the target for small biopsies was not met for Māori or non-Māori women.

Cancer detection rates per 1,000 screens were higher among Māori women in both initial and subsequent screens. However, the proportion of tumours detected that were small, or without nodal involvement was lower among Māori women than among non-Māori women.

Most women diagnosed with cancer, both Māori and non-Māori, appeared to receive appropriate treatment, although the proportion of women with DCIS who received radiotherapy after having BCS was low.

Less than 80% of women were offered an assessment appointment in a timely manner. Most women in BSA received their needle biopsy in a timely manner but the proportion receiving open biopsies or surgery within the desired time frame was well below target. There were also disparities between Māori and non-Māori women in the timely receipt of open biopsies and of first surgical treatment.

It is important to acknowledge the benefits of screening. Previous research indicates that breast screening is equally effective for both Māori and non-Māori women. However, the report has

revealed some areas for improvement and some indications of disparity in quality. The coverage and rescreening rates are critical and may point to the need to ensure each Māori woman's experience of breast screening is a positive one. This report serves as a quality improvement tool and the following recommendations are intended to focus quality improvement activities of the NSU and providers.

Recommendations

Coverage

- There needs to be a strong focus on improving coverage for Māori women by Lead Providers, particularly in the 50-54 year age group and on increasing Māori rescreening rates. Opportunities should be provided for Lead Providers and Independent Service Providers (ISPs) to share successful strategies both within and between regions.
- 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 ISPs.

- Because the coverage rates are likely to reflect both accessibility and acceptability of services, the NSU should consider including ethnicity data on the patient satisfaction surveys and reporting the results for Māori.

Mobile Units

- A higher proportion of Māori women screened access mobile screening units (31%) compared to non-Māori women (18%). 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.

- 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 provide clear information to Māori communities about the technical requirements for mobile unit location (e.g., water, 3-phase power) and re-screening requirements (e.g., mobile unit needs to be there every 2 years at the same time). NSU and Lead Providers could consider providing financial and other support to enable marae to become technical sites for mobile units.

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 reasons for late rescreening 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 24 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 reasons for the higher rates of multiple films used for Māori women need investigation.

- The reasons for the higher technical recall rates for Māori women in both fixed and in mobile units need investigation.

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.

Treatment

- District Health Boards need to improve treatment where indicators show Māori women are not receiving best practice. The reasons for failures to meet the targets need to be investigated.

- The NSU needs to ensure that providers are appropriately trained for coding treatment data and that data encoding is clinically audited.

Timeliness

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

Data collection

- The accuracy of ethnicity data (rather than completeness) may need regular audits.

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.

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

EXECUTIVE SUMMARY

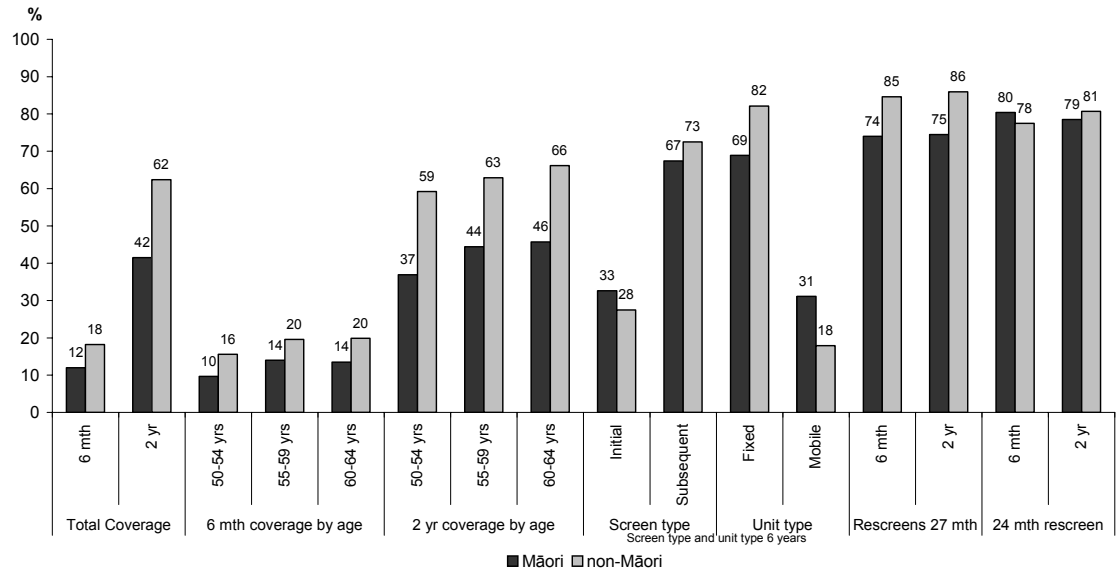
BreastScreen Aotearoa has offered free two-yearly mammographic screening to women aged 50-64 years since 1999. Breast screening cannot prevent breast cancer but aims to detect breast cancers at an early stage when tumours are more amenable to treatment with breast conserving surgery and survival chances are higher. International evidence shows that a properly organised breast screening programme can reduce mortality from breast cancer among women aged 50 to 64 years by 30%. Critical success factors for screening programmes include achieving a high coverage of eligible women, a sensitive screening test, and adequate treatment.

Breast cancer is the most common cancer diagnosed amongst both Māori and non-Māori women. Māori women have 8% higher incidence of breast cancer than non-Māori women but 66% higher mortality rates, and are more likely to be diagnosed at a later stage. Disparities in survival between Māori and non-Māori women with breast cancer are substantial. These inequalities could be substantially reduced if more Māori women were diagnosed at an earlier stage. BreastScreen Aotearoa therefore plays a key role in efforts to improve breast cancer outcomes for Māori women and eliminate inequities.

Monitoring for equity is the first step to addressing disparities. Reducing inequalities is an overarching goal of the National Screening Unit and BSA. BSA also acknowledges the Treaty of Waitangi as the founding document of New Zealand and has committed to working with Māori in good faith, with mutual respect, cooperation and trust. This independent monitoring report is the first to present data on all BSA indicators for Māori and non-Māori women aged 50 to 64 years.

1. Coverage

Figure i: BSA Coverage, 2 years (July 2004 to June 2006)



Coverage is one of the most important determinants of a screening programme's effectiveness. A two-year **overall coverage** rate of 70% or more (or 17.5% over 6 months) is estimated to be required to achieve a significant reduction in longer-term breast cancer mortality. Nationally, only

42% of eligible Māori women aged 50 to 64 years were screened during the two-year period from July 2004 to June 2006 compared to 62% of non-Māori women. There was some improvement in overall coverage rates during the last 6 months of the period but there was no change in the disparity between Māori and non-Māori rates. The coverage of Māori women remained two-thirds that of non-Māori women.

BreastScreen South met the coverage target for Māori women and exceeded the target for non-Māori women. During the last 6 months BSM, BSCtoC, BSC, BSHC exceeded the target for non-Māori women but had low coverage for Māori. The largest disparity was in the Coast to Coast region where Māori women were screened at half the rate of non-Māori. The three new northern providers did not meet the target for either Māori or non-Māori women but coverage of Māori women was lower than that of non-Māori in each region.

The majority of screens during the 6–year period July 2000 to June 2006 were **subsequent screens**. However, a higher proportion of Māori women than non-Māori women were screened for the first time **(initial screens)** in the programme (33% compared to 28%). This pattern was consistent across all lead provider regions. The younger age distribution of Māori women in BSA may contribute to this, but the rescreening rate for Māori women also needs to be considered.

Although the majority of women were screened in **fixed units** a considerably higher proportion of Māori women were screened in **mobile units** (31%) than were non-Māori women (18%). To increase coverage for Māori women it may be important to ensure mobile units are located in areas of high Māori population density.

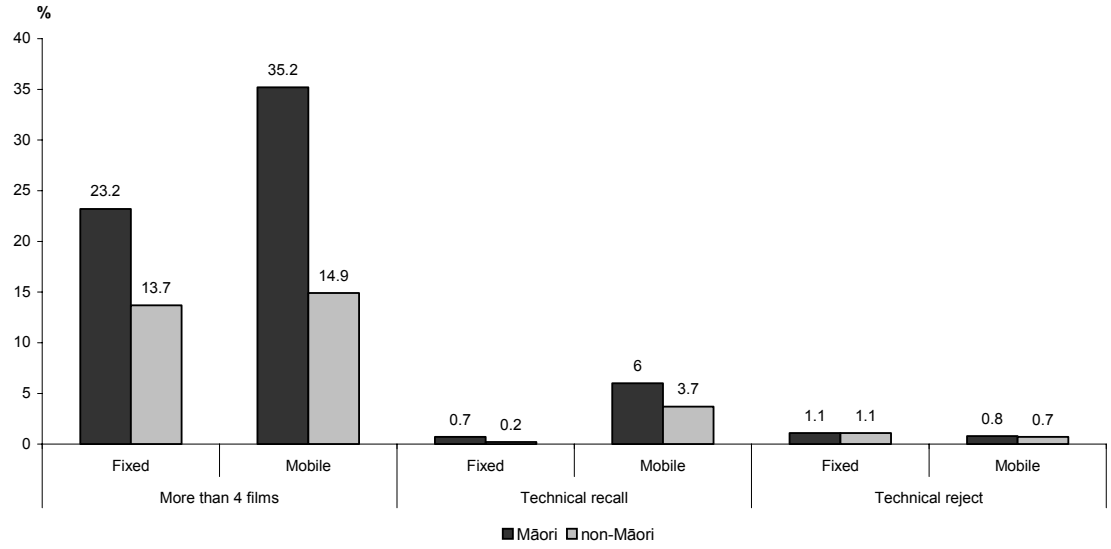
The coverage of Māori women was lowest in the youngest **age group** (50-54 years). A relatively high proportion of Māori aged 50–64 years are in this younger age group (44%) so the lower coverage in this age group will impact on the overall rate and do little to move the screening coverage towards the target of more than 70%. In each age group the coverage of Māori women was significantly lower than that of non-Māori women. The regions with the greatest number of eligible Māori women (BSM and BSCtoC) had large disparities in coverage rates, especially in the youngest age group during the last 6 months.

Overall, the target of over 85% **re-screened within 27 months** was not achieved for Māori women in BSA with only 75% rescreened. Among eligible non-Māori women the target was reached with 85% rescreened during the two-year period. This indicator is intended to reflect the acceptability of the service by assessing the proportion of eligible women who return.

Among women who were rescreened within 27 months, the target of 75% **screened within 20-24 months** was reached for both Māori and non-Māori women nationally during both the two-year period and the 6-month period. This indicator reflects the timeliness of rescreening. There was no significant difference between the overall rates for Māori and non-Māori. Over the 2-year period all providers met the target for Māori except for BSHC. During the last 6 months the target was not met for Māori or non-Māori women in BSCtoC and BSHC.

2. Provision of high quality screening and assessment

Figure ii: BSA Quality Screening Indicators (1), 2 years (July 2004 to June 2006)

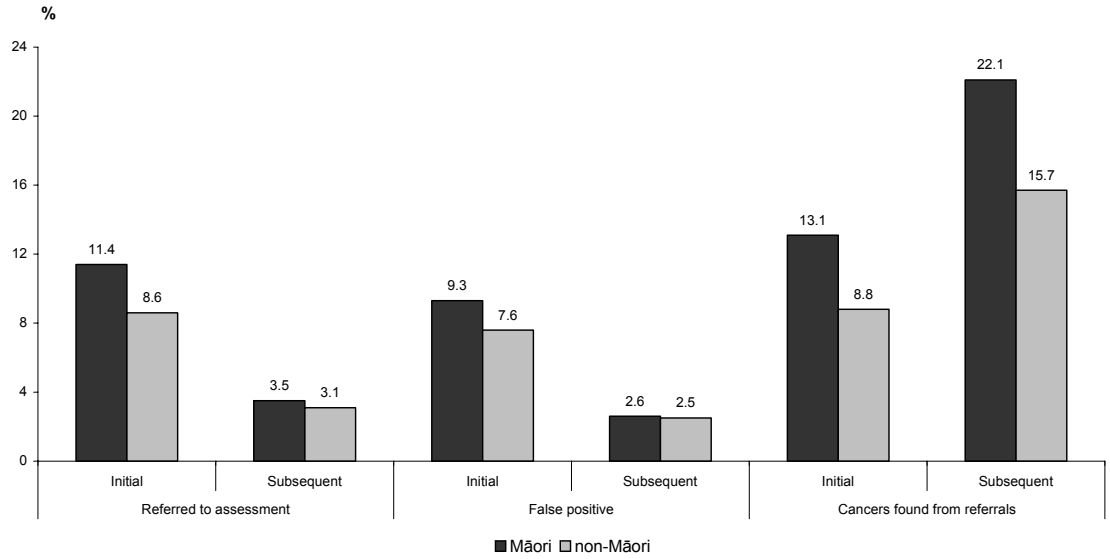


Māori women were more likely than non-Māori women to have **more than four films taken** (i.e. less likely than non-Māori women to have no more than 4 films taken). Nationally the target for this indicator (more than 80% of women screened have four films or fewer taken) was not met for Māori women in either fixed or mobile units, while the percentage for non-Māori women exceeded the target value in both types of unit. Note that in figure ii above, the data shows the proportion of women who have *more* than four films taken, the target therefore is 20% or less. Among Māori women, those screened in mobile units were more likely than those screened in fixed units to have more than 4 films taken. Some providers showed evidence of improvement over the 6 years but the overall BSA rates and disparities did not change significantly. This indicator represents the need for achieving a balance between minimising the radiation dose and obtaining sufficient films to get a clear picture. There could be a number of possible reasons for the higher proportion of Māori women having more than 4 films and these require further investigation.

In both fixed and mobile sites Māori women were more likely than non-Māori women to be **recalled to a screening unit for further films due to technical reasons.** The percentage of Māori women recalled exceeded the target of less than 0.5% for fixed sites during both the 2-year and 6-year period, whereas the percentages for non-Māori women were comfortably below this target. This disparity appears to have increased over time. Six percent of Māori women screened in mobile sites were recalled, well over the target of less than 3%, and two-thirds higher than the proportion of non-Māori women screened in mobile sites. The 2-year technical recall rates for mobile sites were slightly higher than the 6-year rates, but not significantly different. The reasons for the disparate recall rates between Māori and non-Māori women need investigation. The higher proportion of Māori women screened in mobile units underscores the need to ensure high quality screening in mobile units.

The proportion of **films rejected for technical reasons** was within the target value for both Māori and non-Māori women in fixed and mobile units during the last 2 years.

Figure iii: BSA Quality Screening and Assessment Indicators (2), 2 years (July 2004 to June 2006)



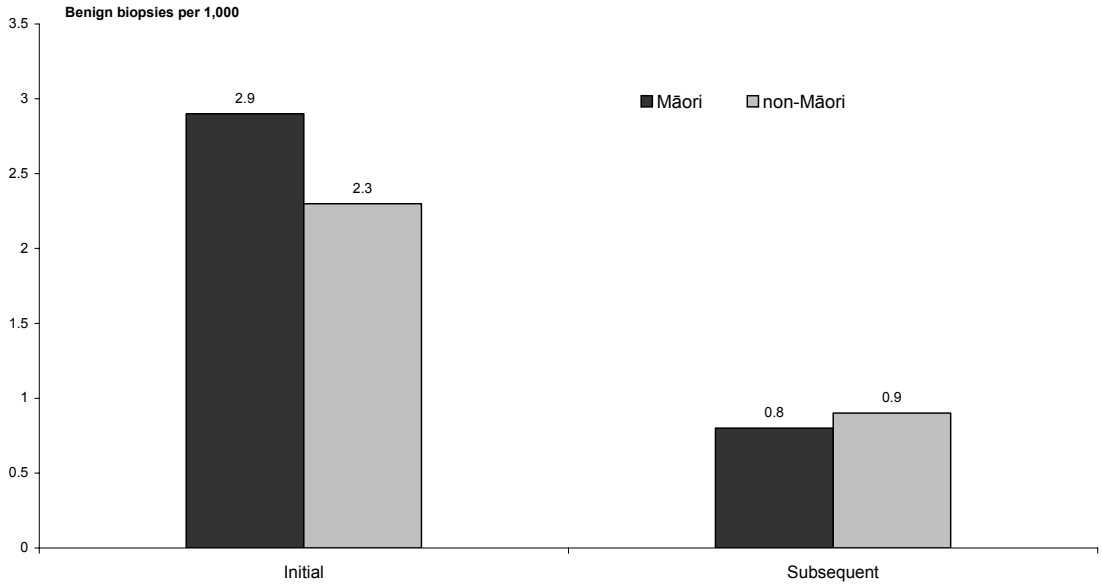
Among women screened by BSA for the first time (initial screens), Māori women were more likely than non-Māori women to be **referred for assessment**. The proportion of Māori women referred (11.4%) was above the expected value of less than 10%, while the proportion of non-Māori women referred (8.6%) was within the expected value. As expected, the number of referrals for assessment among women receiving repeat screens was lower, and within the expected value for both Māori and non-Māori women. The higher rate of referral among Māori women screened for the first time may indicate lower rates of private screening prior to joining the BSA programme. The lower coverage of Māori women by BSA is therefore of considerable concern, placing Māori women at higher risk of missing out on early diagnosis of cancers.

The rate of **false positives** among Māori women screened for the first time (9.3%) was around the expected value, but higher than the rate for non-Māori women (7.6%). Among those receiving subsequent screens the false positive rate was within the target of less than 3% for both Māori and non-Māori women (2.6% and 2.5% respectively).

The **positive predictive value** is the proportion of women screened positive who are ultimately diagnosed as having cancer. The percentage of women referred to assessment who were diagnosed with cancer was higher for Māori women (13% of initial and 22% of subsequent screens) than for non-Māori women (9% of initial and 16% of subsequent screens) during the last 2 years. There were no significant changes over time. These proportions were all above or within the target values of greater than or equal to 9%.

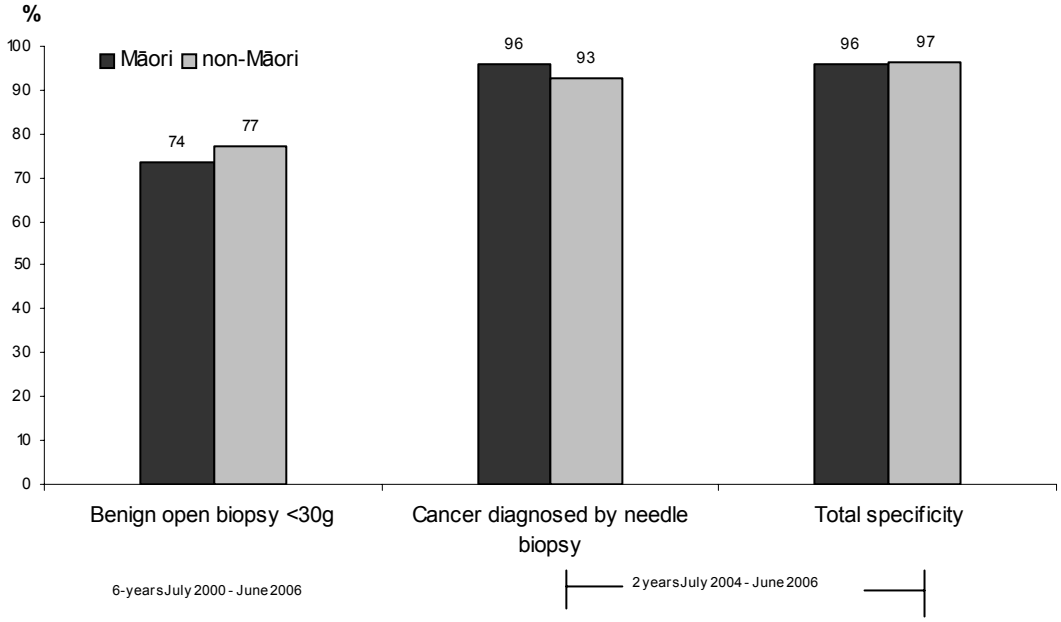
The overall disparity between Māori and non-Māori false positive rates was a third lower than the disparity in rates of referral to assessment (a ratio of 1.22 compared to 1.32). In addition the positive predictive value was higher for Māori women. This indicates that the higher referral rate for Māori women compared to non-Māori women should be expected.

Figure iv: Benign open biopsies per 1,000 women screened, 6 years (July 2000-June 2006)



The proportion of women screened who had **open biopsies** that turned out to be **benign lesions** during the 6-year period was within the target for Māori and non-Māori women, both for initial screens (target ≤ 3.5) and for subsequent screens (target ≤ 1.6).

Figure v: BSA Quality Screening and Assessment Indicators (4), 2 years (July 2004-June 2006) and 6 years (July 2000-June 2006)



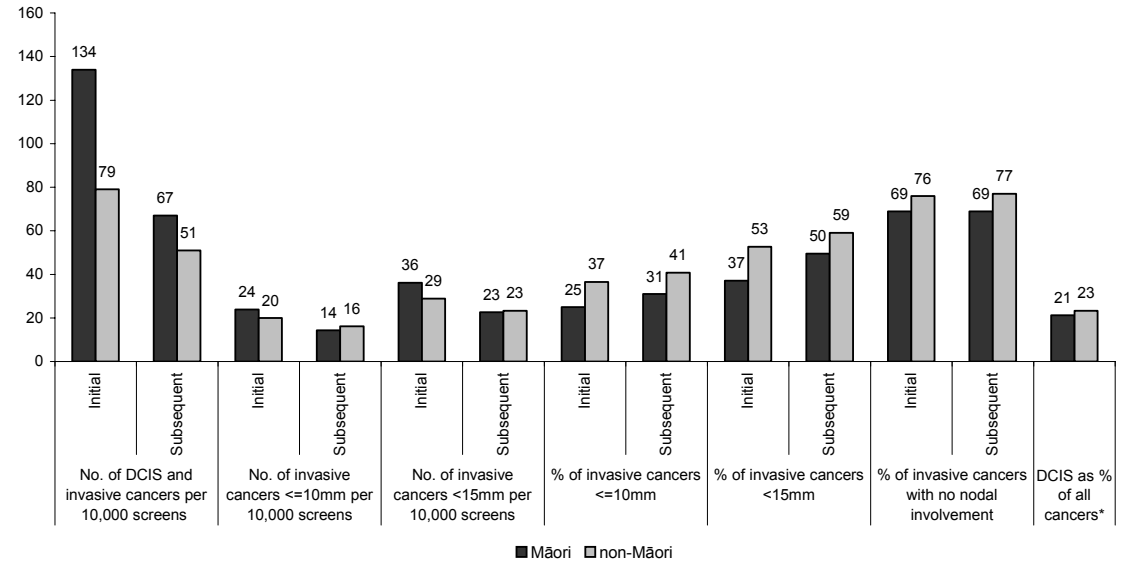
The proportion of **benign open biopsies weighing less than 30 grams** is used to monitor satisfactory cosmetic outcomes in women who have a benign biopsy result. A small biopsy relies on the skill of the surgeon and the radiologist but it is recognised that women may choose to have benign lesions removed, which would result in a higher biopsy weight. During the last 6 years, the target of more than 90% less than 30 grams was not met for Māori women (74%) or non-Māori women (77%).

The **pre-operative diagnosis rate** measures the proportion of all women diagnosed with breast cancer in the programme for whom a needle biopsy provided the definitive diagnosis. The desired target of greater than 90% was met for both Māori women (96%) and non-Māori women (93%) during the last two years and six years.

Specificity is the proportion of women without breast cancer at screening who have a negative result. In BSA this is measured as the number with negative screening results as a proportion of those who screened negative plus false positives. During the last two years the total specificity was above the target of greater than 93% for Māori and non-Māori women (around 96% each). The specificity of initial screens was below target (91% for Māori women and 92% for non-Māori women), but the specificity for subsequent screens was above target (around 97% for both groups).

3. Early detection of DCIS or invasive breast cancer

Figure vi: Early detection indicators



*Data for No. of DCIS and invasive cancers per 10,000 screens and for DCIS as % of all cancers is for the 6 year period (July 2000-June 2006). All other data in this graph is for 7 year period (January 1999-December 2005)

Early detection of cancer allows for early treatment and improved chances of survival. Data is collected on the number of either ductal carcinoma in situ (DCIS) or invasive cancers, the size of invasive cancers upon detection (smaller size usually indicates earlier detection) and the amount of nodal involvement in invasive cancers (no nodal involvement indicates less advanced stage of disease). Figure vi above shows the number and size of invasive cancers per 10,000 screens and also the proportion of cancers that were small, had no nodal involvement, or were DCIS.

In most lead provider regions during the 6 year period, Māori had a higher rate of **DCIS and invasive breast cancer per 10,000 screens** than non-Māori. Overall initial screen detection rates were 70% higher than those of non-Māori, and subsequent screen detection rates 30% higher. Generally Māori detection rates exceeded the BSA targets. The detection rates from subsequent screens reduced over time for both Māori and non-Māori but were 60% higher for Māori than for

non-Māori in the most recent 2 year period. These higher rates are likely to be indicative of a higher background cancer incidence in the Māori population.

Of all cancers detected within each population, Māori had a lower **proportion of small cancers** than non-Māori, for both ≤10mm and <15mm (fig vi). Overall the targets were not met for Māori in initial screens for cancers ≤10mm or <15mm.

A greater proportion of small cancers are expected in subsequent screens, and although this pattern was seen in both populations, the increase was greater for Māori.

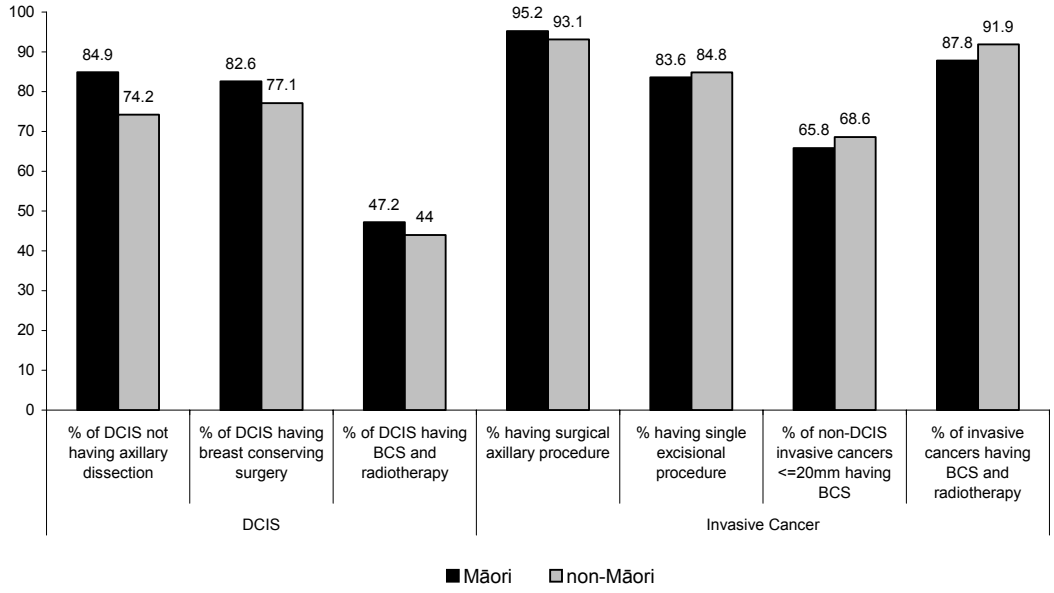
Data is also presented for the **number of small cancers detected per 10,000 screens**, which is dependent on the background cancer incidence. In general, a greater number of small cancers per 10,000 initial screens were detected in Māori women compared to non-Māori women. This is consistent with the higher cancer detection rate for Māori overall. The rates detected in subsequent screens were similar for Māori and non-Māori.

DCIS is a non-invasive cancer, confined to breast ducts and has not spread to the surrounding tissue. The **proportion of all cancers detected that were DCIS** was similar for Māori and non-Māori (21% and 23% respectively). Māori had a lower **proportion of cancers with no nodal involvement**, in both initial and subsequent screens, although the ratio was not statistically significant.

In general, the cancer detection rate was higher for Māori women screened in BSA than for non-Māori women. However, the proportion of cancers that were small or without nodal involvement was lower for Māori indicating that these cancers are being detected at a later stage of the disease.

4. Treatment

Figure vii: Treatment Indicators (1), 7 years (January 1999 to December 2005)



This treatment data includes data from 1990 onwards and depends on the correct coding of treatment data. There are indications that there were some inaccuracies in earlier data (for example

tumour size). The NSU needs to ensure the continuation of efforts to ensure providers are appropriately trained and that data encoding is clinically audited.

As treatment takes place in hospitals, District Health Boards have primary responsibility for good quality treatment and practice. Although BreastScreen Aotearoa has limited control over these procedures, the success of a screening programme depends on high quality follow-up and treatment services. By monitoring treatment data, BSA can encourage good practice and appropriate treatment in hospitals and DHBs.

Low numbers for treatment make it difficult to draw firm conclusions from the data. None of the ratios produced in this section are significant and there are very wide confidence intervals. Several of the treatment indicators have no target. While this makes an analysis of disparities unfeasible, the treatment data draws attention to some areas of concern.

Invasive Cancers

Most women with invasive cancer should also have a **surgical axillary procedure** to help prevent further spread of the disease. The target is set for >95%, which was just met for Māori women, and rates for non-Māori fell slightly short.

A large proportion of women with invasive cancer underwent a **single excisional procedure** for removal (84% Māori, 85% non-Māori). While there is no set target for this, this indicates that for most women who needed surgery, an extra procedure was not necessary.

The majority of women with invasive cancers less than or equal to 20mm should undergo **breast conserving surgery** (BCS) rather than full mastectomy. The target of more than 50% was met for both Māori (66%) and non-Māori (69%).

Most women diagnosed with invasive cancer who have BCS should go on to have **radiotherapy**; a proportion of greater than 95% is expected. Radiotherapy was received by only 88% of Māori women and 92% of non-Māori women with invasive cancer who had BCS.

DCIS

Ductal carcinoma in situ is an early form of breast cancer that has not spread to the surrounding tissue; therefore an **axillary dissection** is usually not needed. The target for **DCIS without axillary dissection** is set for over 95%. This target was not met for either Māori or non-Māori (85% and 74% respectively), indicating that more women with DCIS are undergoing axillary dissection than expected. Possible reasons for this may need further exploration.

The majority of women (>50%) operated on for DCIS should undergo breast conserving surgery rather than full mastectomy. This target was met for both Māori (83%) and non-Māori (77%) women.

Most women with DCIS who undergo breast-conserving surgery should also receive **radiotherapy** treatment. While there is no set target for this indicator, the rates appear low with less than half of the women receiving radiotherapy; 47% Māori and 44% non-Māori. This may be cause for concern.

Figure viii: Proportion of BSA women with invasive cancer who have chemotherapy, 7 years (January 1999-December 2005)

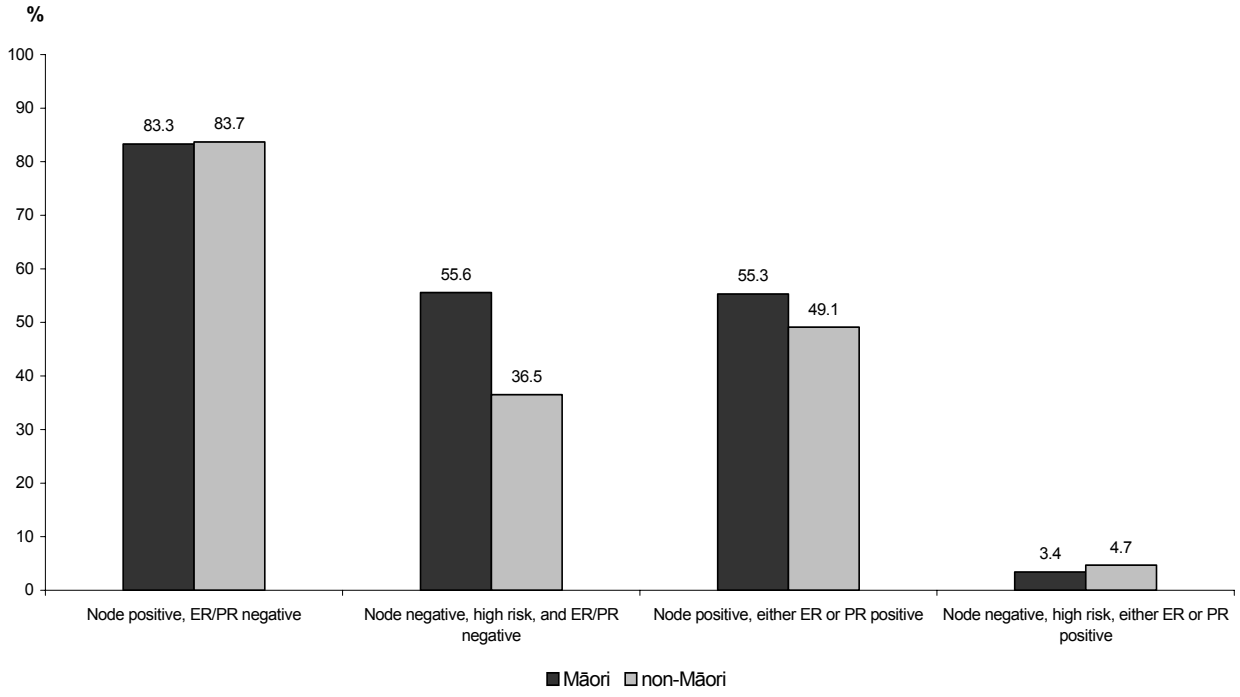
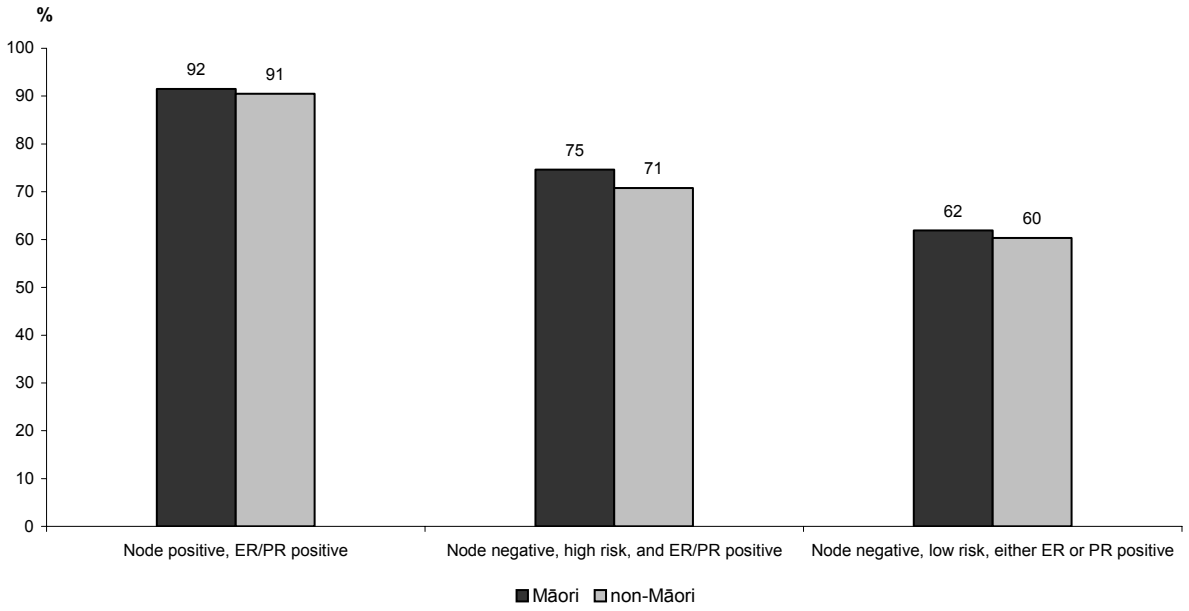


Figure ix: Proportion of BSA women with invasive cancer who had endocrine therapy, 7 years (January 1999-December 2005)

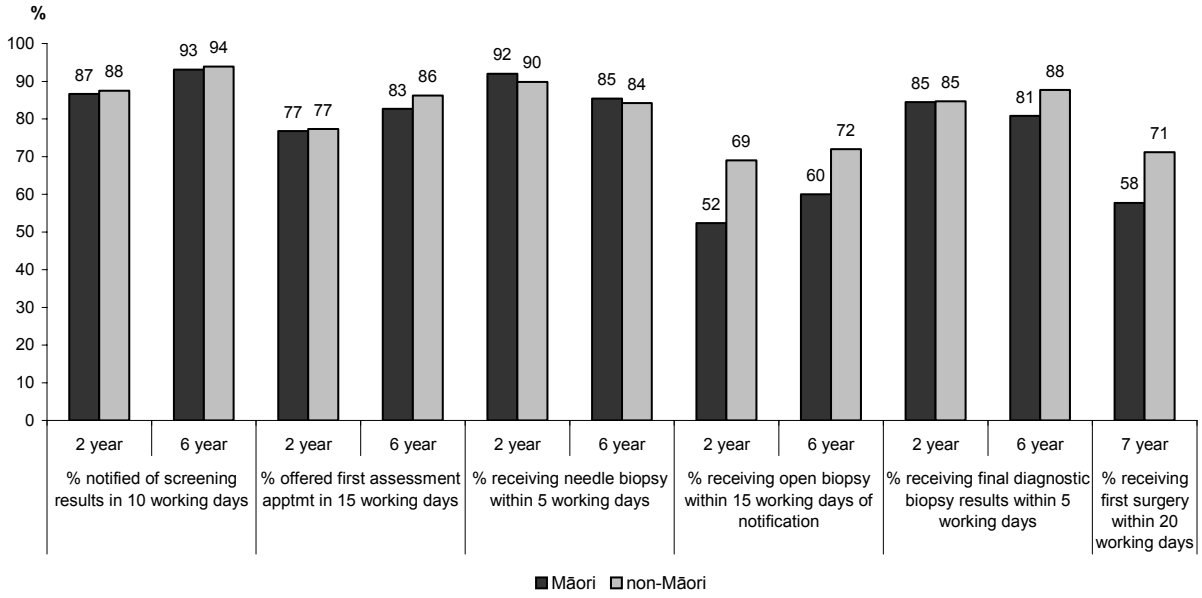


Invasive cancer may spread to the axillary lymph nodes and is termed **node positive**, whereas **node negative** indicates the cancer is present only in the breast. Upon surgical removal of cancer, the cells are examined to determine whether they have receptors for the hormones estrogen or progesterone. If they have receptors for one or both of these, the cancer is hormone-receptor

positive (or **ER/PR positive**) and is therefore most likely to respond to endocrine therapy. **ER/PR negative** cancers are most likely to respond to chemotherapy. There are no targets for these indicators, and actual numbers are low.

5. Provision of an appropriate and acceptable service (timeliness indicators)

Figure x: BSA timeliness indicators, 2 years (July 2004-June 2006) and 6 years (July 2000-June 2006)



Most timeliness indicators worsened somewhat during the last 2 years than in the last 6 years for both Māori and non-Māori women. This may be an effect of the age extension.

The target of 90-95% of women **receiving the results of her mammogram within 10 working days** was not met for Māori (87%) or non-Māori women (88%) nationally during the last 2 years, but was met by several providers. BSC, BSAL and BSWN were below target for both Māori and non-Māori.

BSA aims to have 90% of women offered an **assessment appointment within 15 working days of the screening visit.** Nationally, the target was not met for Māori women or non-Māori women (77% each), although BreastScreen South was above target for both groups.

Among women requiring a **needle biopsy**, 92% of Māori women and 90% of non-Māori women had the **procedure completed with five working days of their assessment**, both reaching the target of at least 90%. This 2-year rate was an improvement on the 6-year rate.

The number of Māori women requiring **open biopsies** during the last 2 years was small, but only 52% received their procedure **within 15 working days of notification of the need for the operation.** The 6-year rate was 60%, well below the target of at least 90%. The target was not met for non-Māori women either, although the proportions receiving timely procedures were higher (69% in the last 2 years and 72% in the last 6 years).

The proportions of women **receiving their final diagnostic biopsy results within 5 working days** were around 85% for both Māori and non-Māori women during the last 2 years, below the target of at least 90%.

During the 7-year period January 1999- December 2005 only 58% of Māori women received their **first surgical treatment within 20 working days of receiving their final diagnostic results,** well below the target of 90% and significantly lower than the non-Māori rate of 71%. These data do not include data from BSWN, BSCM or BSAL and may not be a true reflection of the national results.

INTRODUCTION

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 BreastScreen Aotearoa (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[1].

Disparities in breast cancer outcomes between Māori and non-Māori women are substantial. During the period 2000–2004 age-standardised breast cancer incidence among Māori women aged 45-64 years was only 8% higher than that of non-Māori women while deaths from breast cancer in this age group were 66% more common. 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.[2] 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.[3]

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.

Previous BSA Independent Monitoring Reports have described BSA coverage rates for Māori, Pacific and Other women but have not presented data on other indicators.[4] This report provides Māori and non-Māori rates and ratios for all programme indicators, including breast screening coverage, quality of screening and assessment, access to diagnostic and treatment services, and timeliness of screening and treatment. This inaugural report and the annual 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.

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

[2] 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.

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

[4] Page A, Taylor R. Independent Monitoring Reports. National Screening Unit.

BACKGROUND

BreastScreen Aotearoa[5]

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 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.

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

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

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 six- 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
BSS	BreastScreen South Limited	1999 to present
BSHC	BreastScreen HealthCare	1999 to present

Figure xi: Map of BSA Lead Provider Regions

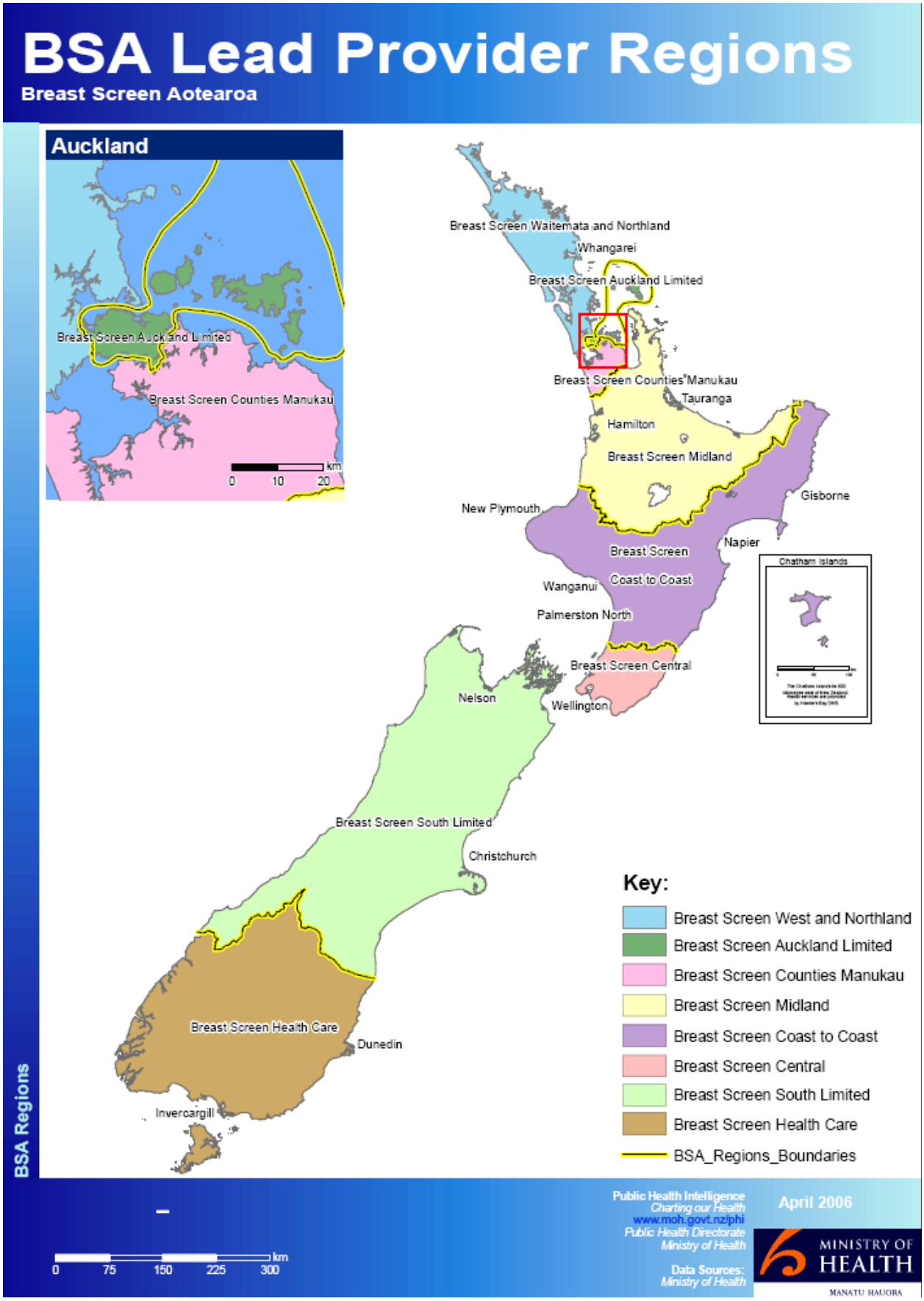
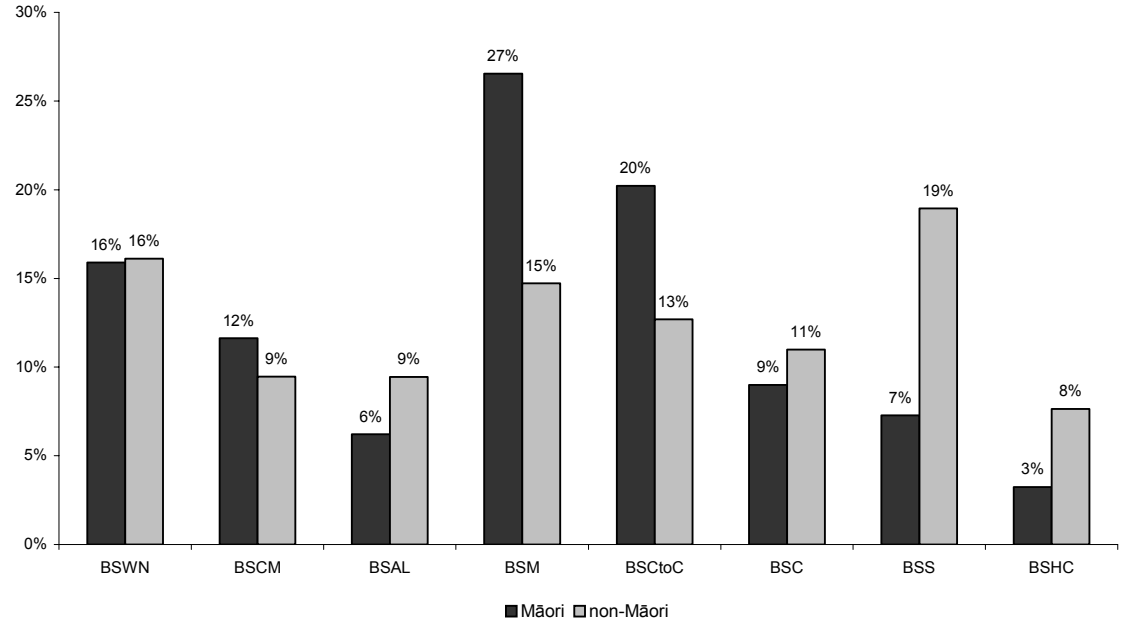


Figure xii: Distribution of Māori and non-Māori women aged 50 to 64 years by Lead Provider region



Source: Statistics NZ Population Projections 2005

Figure xii 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.

The population of Māori women in this age group is concentrated around the central North Island, and also in the far north. This is seen by the high proportions of Māori women in each of the BSM, BSCtoC and BSWN regions. The population of non-Māori women is concentrated in the upper South Island (BSS), the far north (BSWN) and central North Island (BSCtoC and BSM).

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:

Mina Timutimu
Te Atiawa
Member of Midwifery Council, Newborn Metabolic Screening Board and Mâori Advisory Group. Specializes in Midwifery Care. Kaumatua to the National College of Midwives

Ricci Harris
Ngāti Kahungunu, Ngāti Raukawa, Ngāi Tahu
Public Health Physician, Te Rōpū Rangahau Hauora a Eru Pōmare, School of Medicine and Health Sciences, University of Otago, Wellington

Lillian Ward
Ngāti Porou, Rongomaiwahine, Ngāti Tūwharetoa, Te Arawa
Lead Health Promoter, BSA & NCSP, Regional Screening Services, Hutt Valley DHB

Nina Scott
Ngāti Whatua, Waikato
Public Health Physician

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

Sonya Rimene
Rangitāne, Ngāti Kahungunu, Ngāi Tahu, Te Arawa
Kaihautū at Ministry of Women's Affairs (ex-officio member)

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

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

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

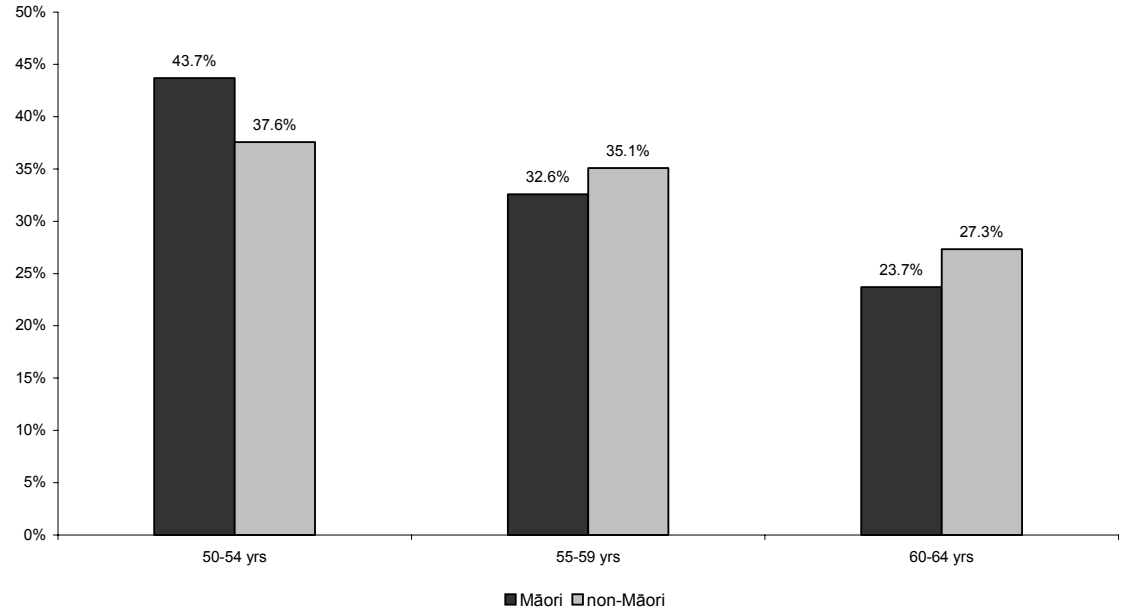
Sue Crengle
Kāi Tahu, Kāti Mamoe, Waitaha
General Practitioner, Public Heath Physician

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 years 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, this report includes data for women aged 50-64 years only.

Population age distribution

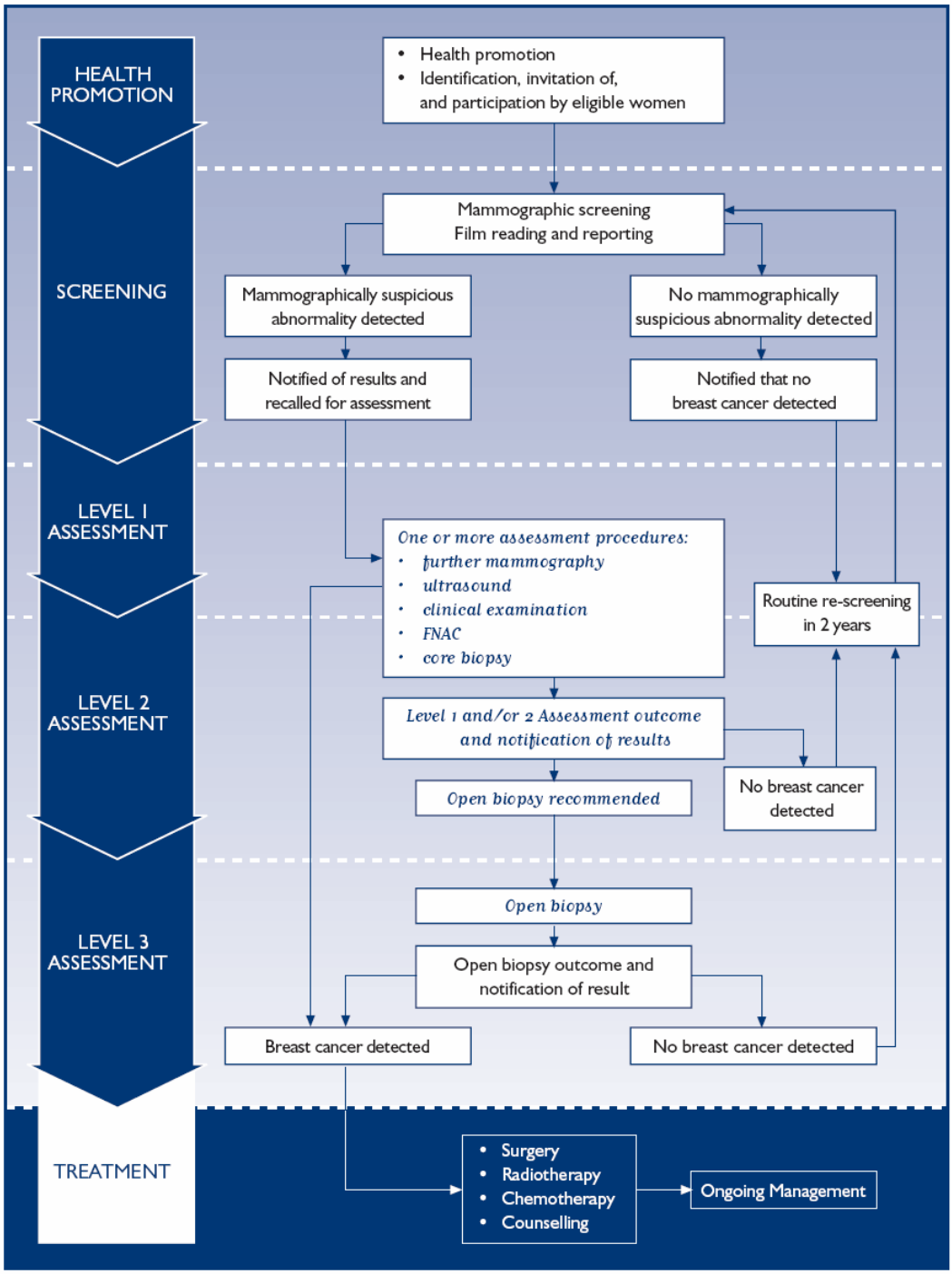
Figure xiii: Age distribution of Māori and non-Māori women aged 50 to 64 years, 2005



Of all women aged 50-64, a higher proportion of Māori than non-Māori are in the younger age group of 50-54 years (SNZ population mid-year population estimates 2005). Services provided to the younger age groups will therefore have direct bearing on a greater proportion of the Māori population.

The Breast Screening Pathway[6]

Figure xiv: The Breast Screening Pathway



[6] 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 New Zealand Health Information Service of the Ministry of Health (NZHIS). The data are checked at NZHIS, 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, 6-year, and in some cases 7-year data. The tables are sent to Te Rōpū Rangahau Hauora a Eru Pōmare (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

Where possible, comparisons have been made between two-year and six-year data in order to examine any trends over time. The six-year data includes the two-year data.

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 2005 projected population (as at December 2005) was used. This is the same population that is used for all BSA quality and contract monitoring for the period July 2005 to June 2006. 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)[7].

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. A footnote beneath each table states whether ratios above or below 1.0 are unfavourable to Māori.

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 xv: 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)[8]

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

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 do not 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.

[8] 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.

Note that in order to achieve this target, providers should ideally have a coverage rate of >17.5% for the six-month period. Coverage rates that fall below or equal to 17.5% have been shaded for the six-month data in table 1a.1 below.

Table 1a.1: Overall coverage of eligible women aged 50–64 years, 6 months (January to June 2006) and 2 years (July 2004 to June 2006)

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)			
6 months (January-June 2006)										
BSWN	528	6,500	4,840	49,490	10.9	(10.0-11.8)	13.1	(12.8-13.4)	0.83	(0.76-0.91)
BSCM	473	4,561	3,540	29,065	13.4	(12.3-14.5)	15.7	(15.3-16.1)	0.85	(0.77-0.94)
BSAL	275	4,826	1,890	29,000	14.6	(13.0-16.2)	16.6	(16.2-17.1)	0.88	(0.77-0.99)
BSM	920	8,433	8,080	45,255	11.4	(10.7-12.1)	18.6	(18.3-19.0)	0.61	(0.57-0.65)
BSCtoC	562	7,220	6,155	38,965	9.1	(8.4-9.9)	18.5	(18.1-18.9)	0.49	(0.45-0.54)
BSC	379	6,991	2,740	33,760	13.8	(12.6-15.2)	20.7	(20.3-21.1)	0.67	(0.60-0.74)
BSS	387	12,599	2,215	58,175	17.5	(15.9-19.1)	21.7	(21.3-22.0)	0.81	(0.73-0.89)
BSHC	138	4,749	985	23,440	14.0	(11.9-16.3)	20.3	(19.7-20.8)	0.69	(0.58-0.82)
Total NZ	**3,662**	**55,879**	**30,445**	**307,150**	**12.0**	**(11.7-12.4)**	**18.2**	**(18.1-18.3)**	**0.66**	**(0.64-0.68)**
2 years (July 2004-June 2006)										
Ak & Nth**	4,456	54,344	10,270	107,555	43.4	(42.4-44.4)	50.5	(50.2-50.8)	0.86	(0.83-0.89)
- BSWN										
- BSCM										
- BSAL										
BSM	3,065	28,304	8,080	45,255	37.9	(36.9-39.0)	62.5	(62.1-63.0)	0.61	(0.58-0.63)
BSCtoC	1,950	24,109	6,155	38,965	31.7	(30.5-32.9)	61.9	(61.4-62.4)	0.51	(0.49-0.54)
BSC	1,151	21,154	2,740	33,760	42.0	(40.2-43.9)	62.7	(62.1-63.2)	0.67	(0.63-0.71)
BSS	1,533	47,587	2,215	58,175	69.2	(67.2-71.1)	81.8	(81.5-82.1)	0.85	(0.80-0.89)
BSHC	467	16,263	985	23,440	47.4	(44.3-50.6)	69.4	(68.8-70.0)	0.68	(0.62-0.75)
Total NZ	**12,622**	**191,761**	**30,445**	**307,150**	**41.5**	**(40.9-42.0)**	**62.4**	**(62.3-62.6)**	**0.66**	**(0.65-0.68)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* Eligible population is based on the 2005 projected population

** Ak & Nth (Auckland and North) presents data from BSAN, BSWN, BSCM and BSAL combined. Two-year coverage rates are not shown for BSWN, BSCM and BSA because they have been screening less than 2 years

Overall, only 42% of eligible Māori women aged 50 to 64 years were screened during the two-year period from July 2004 to June 2006 compared to 62% of non-Māori women. There was some improvement in coverage rates during the last 6 months of the period but there was no change in

the disparity between Māori and non-Māori. Māori coverage remained two-thirds that of non-Māori.

Six-month period
To meet the target of 70% of women screened each two years, 17.5% of all eligible women should be screened on average every six months. Overall, BSA did not meet the target for Māori women aged 50–64 years during the last 6 month period with only 12.0% screened, while the target for non-Māori women was exceeded at 18.2 %. Māori women were screened at two-thirds the rate of non-Māori women.

Coverage rates varied by lead provider. Most providers met the target for non-Māori women (apart from BSWN and BSCM) but BSS was the only lead provider to meet the target for Māori women. The lowest coverage for Māori women (and the largest disparity) was in the BSCtoC region where only 9.1% were screened, half the non-Māori rate of 18.5%.

Two-year period
Only 42% of eligible Māori women aged 50–64 years were screened during the last two years, two-thirds the non-Māori rate of 62.4%. BSS met the target of 70% or more for Māori women and exceeded the target for non-Māori women. Only 32% of Māori women in the BSCtoC region were screened compared to 62% of non-Māori women in this region.

Comments
BSA coverage of women aged 50–64 years may have been affected by the age extension implemented in June 2004. It is likely that coverage will improve as the capacity of services develops. Indeed, the non-Māori coverage rates appear to have improved in the last 6 months of the two-year period to exceed the target in most regions. However, Māori rates continued to be well under the target in all regions apart from BSS and remain at two-thirds the non-Māori rate overall. Strategies used by BSS to achieve equitable coverage rates for Māori and non-Māori could be considered by other lead providers in order to make the substantial progress required.

Coverage rates are dependent on the accuracy of population estimates of Māori and non-Māori women aged 50 to 64 years in each region. The numbers of eligible women were calculated using population projections for the year 2005. This may impact on the coverage rates but it is unlikely that population estimates for the BSS region would be substantially less accurate than those of other regions.

The accuracy of ethnicity data in the BSA programme could also affect coverage rates. Ideally ethnicity data should be collected in the same manner as the Population Census from which the estimates of eligible women are constructed. An audit of the accuracy of ethnicity data on BSA records may be desirable at some stage (rather than completeness of ethnicity data).

Figure 1a.1.1: Monthly and 2 yearly screening volumes, Māori women (50-64 year age group)

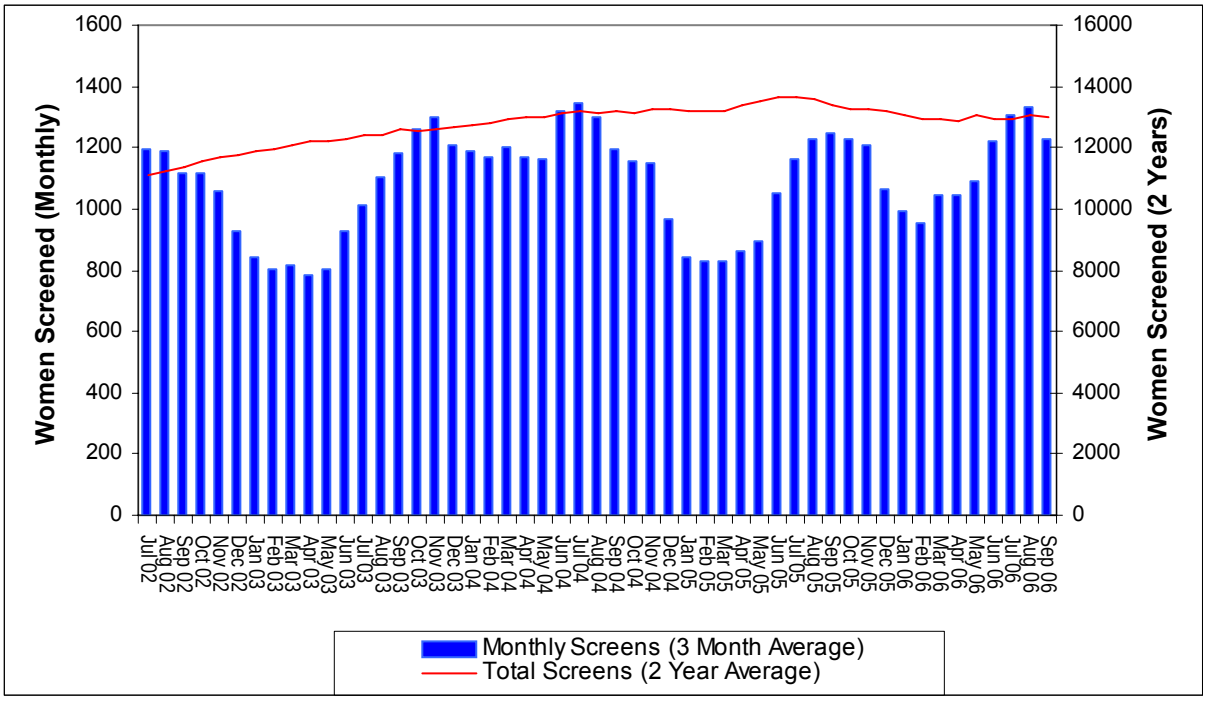
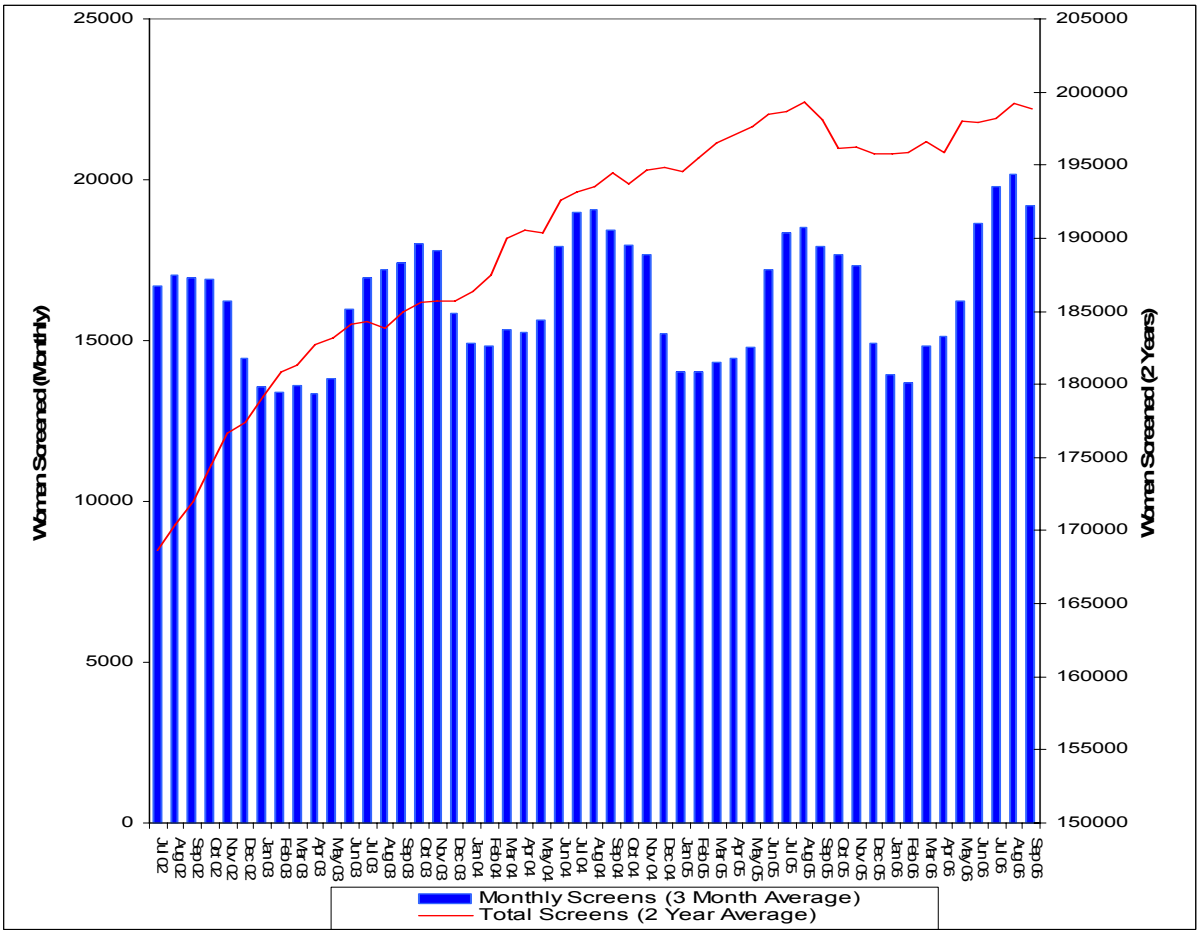


Figure 1a.1.2: Monthly and 2 yearly screening volumes, non-Māori women (50-64 year age group)



Volumes of screens

During the period between July 2002 and September 2006 there was a substantial increase in the 2-year average volume of screens among non-Māori women while the 2-year average among Māori women shows only a minimal increase.

Trends in coverage over time

There appears to be an overall decrease in coverage in recent years for all ethnic groups. This is of concern for Māori women, especially given the lower starting point.

Figure 1a.1.3: Trends in coverage for Māori women aged 50–64 years (2001-2006)

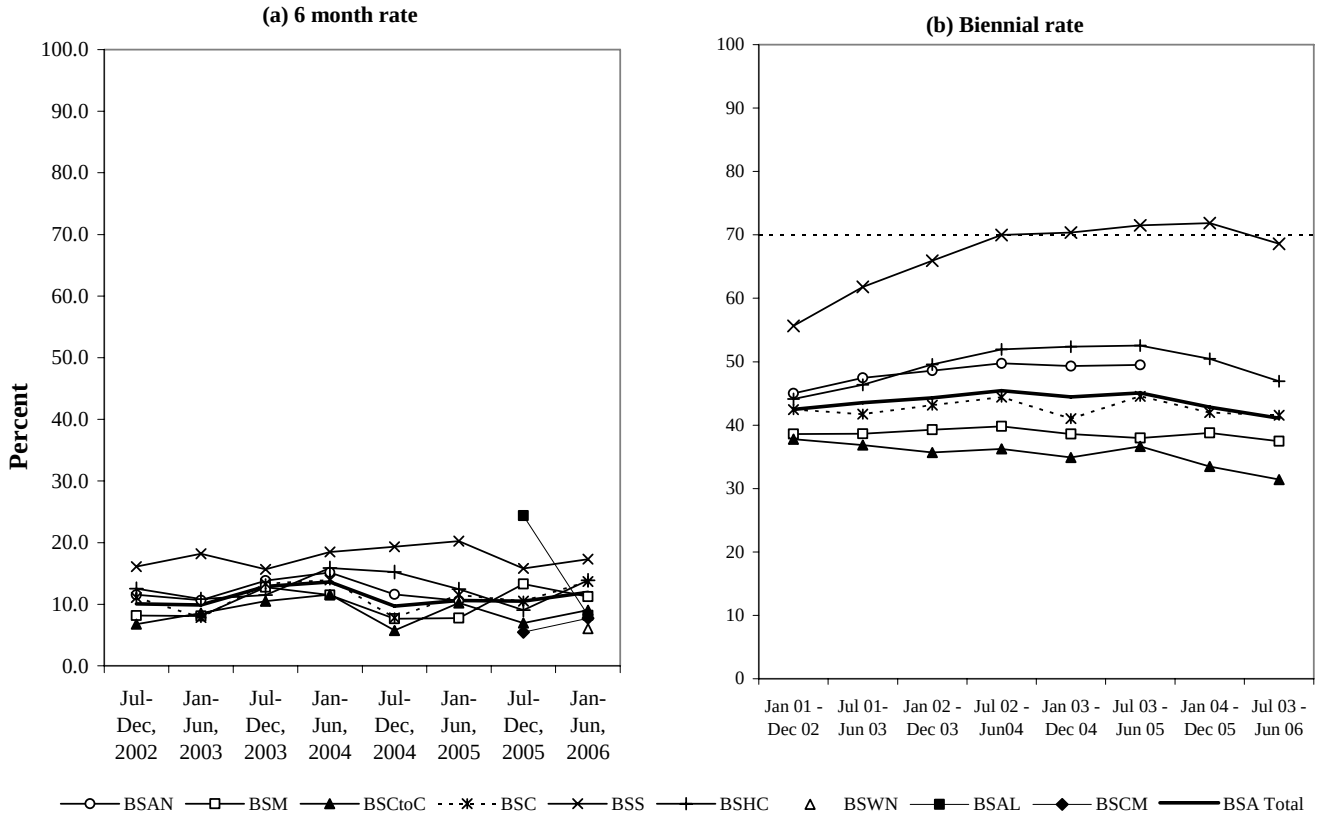


Figure 1a.1.4: Trends in coverage for Pacific women aged 50–64 years (2001-2006)

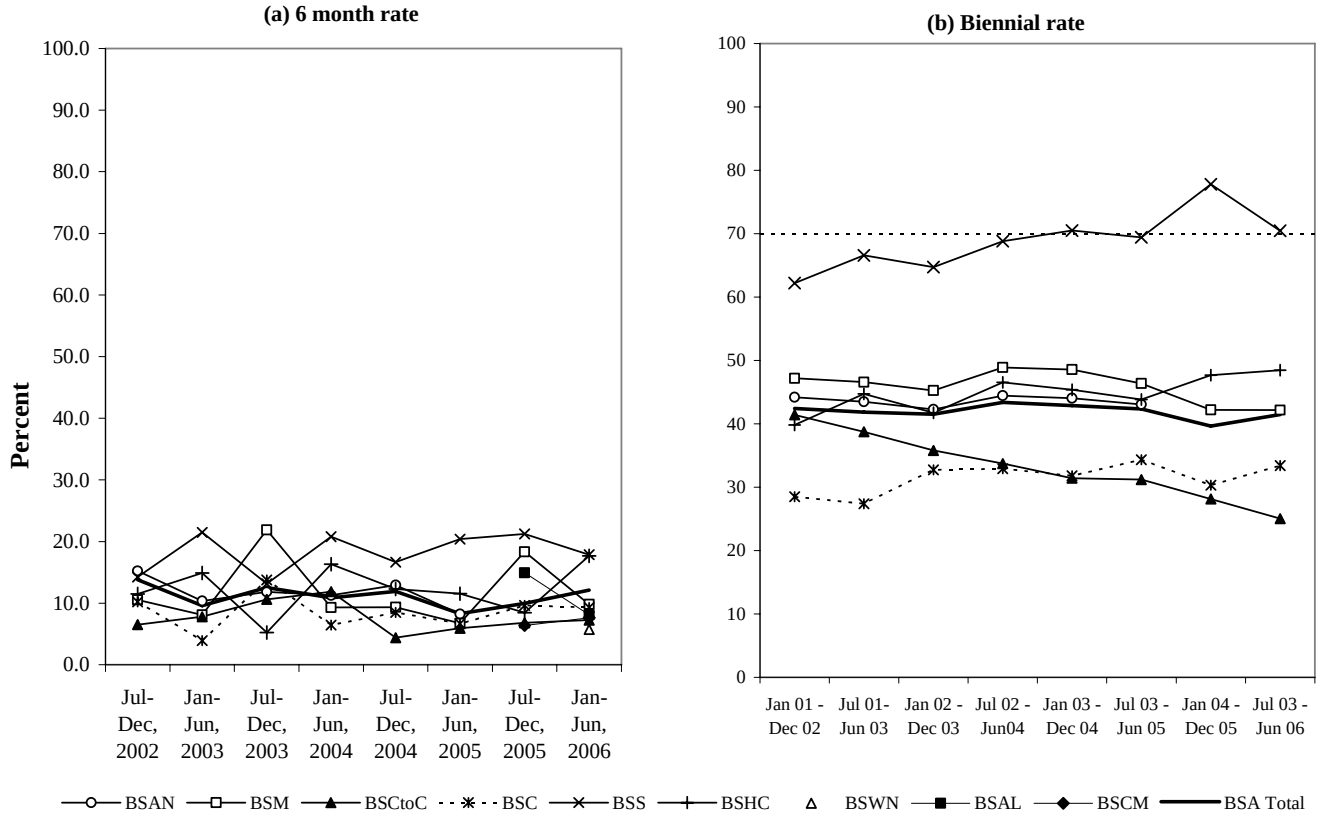
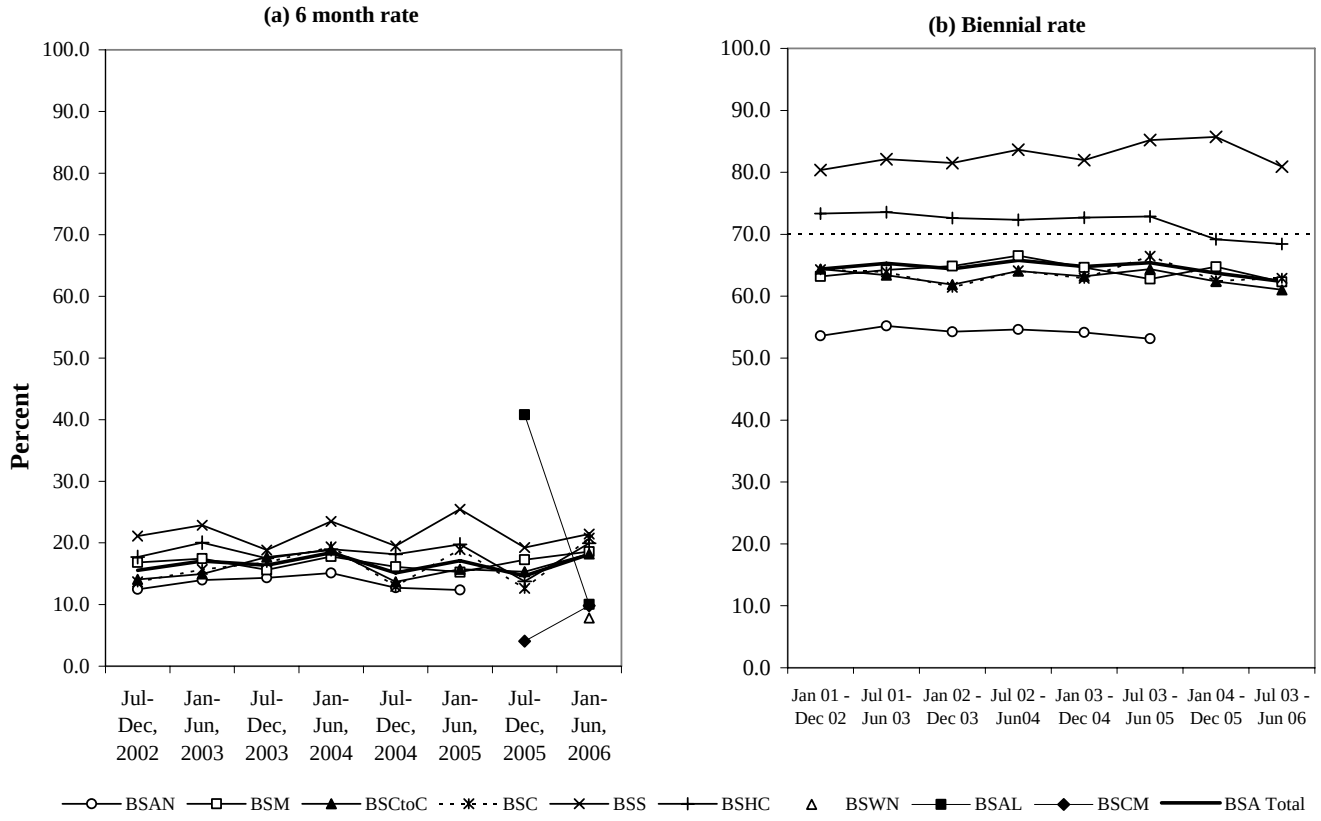


Figure 1a.1.5: Trends in coverage for Other ethnic groups, women aged 50–64 years (2001-2006)



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, 6 years (July 2000-June 2006)

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*	76	767	528	6,500	14.4	(11.5-17.7)	11.8	(11.0-12.6)	1.22	(0.95-1.55)
BSCM*	157	1,414	578	5,885	27.2	(23.6-31.0)	24.0	(22.9-25.1)	1.13	(0.95-1.33)
BSAN/ BSAL	4,074	44,753	11,935	143,944	34.1	(33.3-35.0)	31.1	(30.9-31.3)	1.10	(1.06-1.13)
BSM	2,935	21,130	9,062	85,072	32.4	(31.4-33.4)	24.8	(24.5-25.1)	1.30	(1.25-1.36)
BSCtoC	1,858	19,856	6,058	70,519	30.7	(29.5-31.8)	28.2	(27.8-28.5)	1.09	(1.04-1.14)
BSC	1,176	17,562	3,193	59,708	36.8	(35.2-38.5)	29.4	(29.0-29.8)	1.25	(1.18-1.33)
BSS	1,451	38,103	4,256	135,924	34.1	(32.7-35.5)	28.0	(27.8-28.3)	1.22	(1.15-1.28)
BSHC	308	9,077	1,355	48,206	22.7	(20.5-25.1)	18.8	(18.5-19.2)	1.21	(1.07-1.35)
Total NZ	**12,035**	**152,662**	**36,965**	**555,758**	**32.6**	**(32.1-33.0)**	**27.5**	**(27.4-27.6)**	**1.19**	**(1.16-1.21)**
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*	452	5,733	528	6,500	85.6	(82.3-88.5)	88.2	(87.4-89.0)	0.97	(0.88-1.07)
BSCM*	421	4,471	578	5,885	72.8	(69.0-76.4)	76.0	(74.9-77.1)	0.96	(0.87-1.06)
BSAN/ BSAL	7,861	99,191	11,935	143,944	65.9	(65.0-66.7)	68.9	(68.7-69.1)	0.96	(0.93-0.98)
BSM	6,127	63,942	9,062	85,072	67.6	(66.6-68.6)	75.2	(74.9-75.5)	0.90	(0.88-0.92)
BSCtoC	4,200	50,663	6,058	70,519	69.3	(68.2-70.5)	71.8	(71.5-72.2)	0.97	(0.93-1.00)
BSC	2,017	42,146	3,193	59,708	63.2	(61.5-64.8)	70.6	(70.2-71.0)	0.89	(0.86-0.94)
BSS	2,805	97,821	4,256	135,924	65.9	(64.5-67.3)	72.0	(71.7-72.2)	0.92	(0.88-0.95)
BSHC	1,047	39,129	1,355	48,206	77.3	(74.9-79.5)	81.2	(80.8-81.5)	0.95	(0.89-1.01)
Total NZ	**24,930**	**403,096**	**36,965**	**555,758**	**67.4**	**(67.0-67.9)**	**72.5**	**(72.4-72.6)**	**0.93**	**(0.92-0.94)**

* BSWN and BSCM data is for less than 2 years

During the last 6 years (July 2000 to June 2006) a third of the Māori women aged 50 to 64 years screened by BSA were screened for the first time in the programme (initial or prevalent screens), compared to just over a quarter of non-Māori women. Overall, 67% of Māori and 73% of non-Māori screens were subsequent.

The higher proportion of initial screens among Māori was consistent across all lead provider regions. This may partially explain the higher rate of cancer detection and the larger tumours found among Māori women. Māori women are also more likely not to have had private screening before joining the programme than non-Māori women, indicating that the initial screens of Māori women are probably more true prevalent screens than those of 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, women 50–64 years, 6 years (July 2000-June 2006)

Lead provider	Number screened in fixed unit		Number screened		% screened in fixed unit (95% CI)				Māori/non-Māori ratio (95% CI)	
	Māori	Non-Māori	Māori	Non-Māori	Māori		Non-Māori			
BSWN*	304	5,534	528	6,500	57.6	(53.2-61.8)	85.1	(84.3-86.0)	0.68	(0.60-0.76)
BSCM*	567	5,811	578	5,885	98.1	(96.6-99.0)	98.7	(98.4-99.0)	0.99	(0.91-1.08)
BSAN/ BSAL	8,361	125,845	11,935	143,944	70.1	(69.2-70.9)	87.4	(87.3-87.6)	0.80	(0.78-0.82)
BSM	5,402	62,745	9,062	85,072	59.6	(58.6-60.6)	73.8	(73.5-74.1)	0.81	(0.79-0.83)
BSCtoC	4,386	61,761	6,058	70,519	72.4	(71.3-73.5)	87.6	(87.3-87.8)	0.83	(0.80-0.85)
BSC	2,112	42,882	3,193	59,708	66.1	(64.5-67.8)	71.8	(71.5-72.2)	0.92	(0.88-0.96)
BSS	3,357	119,028	4,256	135,924	78.9	(77.6-80.1)	87.6	(87.4-87.7)	0.90	(0.87-0.93)
BSHC	983	3,2720	1,355	48,206	72.5	(70.1-74.9)	67.9	(67.5-68.3)	1.07	(1.00-1.14)
Total NZ	**25,472**	**456,326**	**36,965**	**555,758**	**68.9**	**(68.4-69.4)**	**82.1**	**(82.0-82.2)**	**0.84**	**(0.83-0.85)**
Lead provider	**Number screened in mobile unit**		**Number screened**		**% screened in mobile unit (95% CI)**				**Māori/non-Māori ratio (95% CI)**	
	Māori	**Non-Māori**	**Māori**	**Non-Māori**	**Māori**		**Non-Māori**			
BSWN*	224	966	528	6,500	42.4	(38.2-46.8)	14.9	(14.0-15.7)	2.85	(2.46-3.30)
BSCM*	11	74	578	5,885	1.9	(1.0-3.4)	1.3	(1.0-1.6)	1.51	(0.72-2.87)
BSAN/ BSAL	3,574	18,099	11,935	143,944	29.9	(29.1-30.8)	12.6	(12.4-12.7)	2.38	(2.30-2.47)
BSM	3,660	22,327	9,062	85,072	40.4	(39.4-41.4)	26.2	(25.9-26.5)	1.54	(1.49-1.59)
BSCtoC	1,672	8,758	6,058	70,519	27.6	(26.5-28.7)	12.4	(12.2-12.7)	2.22	(2.11-2.34)
BSC	1,081	16,826	3,193	59,708	33.9	(32.2-35.5)	28.2	(27.8-28.5)	1.20	(1.13-1.28)
BSS	899	16,896	4,256	135,924	21.1	(19.9-22.4)	12.4	(12.3-12.6)	1.70	(1.59-1.82)
BSHC	372	15,486	1,355	48,206	27.5	(25.1-29.9)	32.1	(31.7-32.5)	0.85	(0.77-0.95)
Total NZ	**11,493**	**99,432**	**36,965**	**555,758**	**31.1**	**(30.6-31.6)**	**17.9**	**(17.8-18.0)**	**1.74**	**(1.70-1.77)**

* BSWN and BSCM data is for less than 2 years

During the last 6 years the majority of women were screened in fixed units, but a higher proportion of Māori women were screened in mobile units (31%) than non-Māori women (18%). 69% of Māori women were screened in fixed units compared to 82% of non-Māori women.

Midlands had the highest number of women screened in mobile units, and the highest number of eligible Māori women (27% of total NZ Māori women aged 50 to 64).

Accessibility: Given the higher proportion of Māori women accessing mobile units, and the low coverage rates for Māori in most regions, it is important to carefully consider where mobile units are located in order to increase access for Māori women and reduce coverage disparities. Areas with high density Māori population may be more productive.

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

Table 1a.4.1: Coverage by age group, 6 months (January to June 2006)

Lead provider	Number of women screened in last 6 months		Eligible population*		% coverage in last 6 months (95% CI)				Māori/non-Māori ratio (95% CI)	
	Māori	Non-Māori	Māori	Non-Māori	Māori		Non-Māori			
50-54 years										
BSWN	180	1,847	2,050	18,480	8.8	(7.6-10.1)	10.0	(9.6-10.4)	0.88	(0.75-1.02)
BSCM	190	1,606	1,550	11,135	12.3	(10.7-14.0)	14.4	(13.8-15.1)	0.85	(0.73-0.99)
BSAL	101	1,646	850	11,760	11.9	(9.8-14.2)	14.0	(13.4-14.6)	0.85	(0.69-1.04)
BSM	355	2,620	3,540	16,485	10.0	(9.1-11.1)	15.9	(15.3-16.5)	0.63	(0.56-0.71)
BSCtoC	158	2,214	2,665	14,425	5.9	(5.1-6.9)	15.3	(14.8-15.9)	0.39	(0.33-0.45)
BSC	125	2,282	1,230	12,690	10.2	(8.5-12.0)	18.0	(17.3-18.7)	0.57	(0.47-0.68)
BSS	139	4,200	965	21,695	14.4	(12.2-16.8)	19.4	(18.8-19.9)	0.74	(0.62-0.88)
BSHC	49	1,604	455	8,705	10.8	(8.1-14.0)	18.4	(17.6-19.3)	0.59	(0.43-0.78)
Total NZ	**1,297**	**18,019**	**13,305**	**115,375**	**9.7**	**(9.2-10.3)**	**15.6**	**(15.4-15.8)**	**0.62**	**(0.59-0.66)**
55-59 years										
BSWN	208	2,657	1,610	17,400	12.9	(11.3-14.7)	15.3	(14.7-15.8)	0.84	(0.73-0.97)
BSCM	168	1,620	1,180	10,115	14.2	(12.3-16.4)	16.0	(15.3-16.7)	0.89	(0.75-1.04)
BSAL	106	1,841	620	10,050	17.1	(14.2-20.3)	18.3	(17.6-19.1)	0.93	(0.76-1.14)
BSM	316	3,037	2,580	15,725	12.2	(11.0-13.6)	19.3	(18.7-19.9)	0.63	(0.56-0.71)
BSCtoC	237	2,769	2,000	13,565	11.9	(10.5-13.3)	20.4	(19.7-21.1)	0.58	(0.51-0.66)
BSC	167	2,693	910	11,995	18.4	(15.9-21.0)	22.5	(21.7-23.2)	0.82	(0.69-0.96)
BSS	133	4,718	720	20,715	18.5	(15.7-21.5)	22.8	(22.2-23.4)	0.81	(0.68-0.96)
BSHC	52	1,779	300	8,220	17.3	(13.2-22.1)	21.6	(20.8-22.5)	0.80	(0.60-1.06)
Total NZ	**1,387**	**21,114**	**9,920**	**107,785**	**14.0**	**(13.3-14.7)**	**19.6**	**(19.4-19.8)**	**0.71**	**(0.68-0.75)**
60-64 years										
BSWN	140	1,996	1,180	13,610	11.9	(10.1-13.8)	14.7	(14.1-15.3)	0.81	(0.68-0.96)
BSCM	115	1,335	810	7,815	14.2	(11.9-16.8)	17.1	(16.3-17.9)	0.83	(0.68-1.01)
BSAL	67	1,338	420	7,190	16.0	(12.6-19.8)	18.6	(17.7-19.5)	0.86	(0.66-1.10)
BSM	249	2,776	1,960	13,045	12.7	(11.3-14.3)	21.3	(20.6-22.0)	0.60	(0.52-0.68)
BSCtoC	167	2,237	1,490	10,975	11.2	(9.7-12.9)	20.4	(19.6-21.1)	0.55	(0.47-0.64)
BSC	87	2,016	600	9,075	14.5	(11.8-17.6)	22.2	(21.4-23.1)	0.65	(0.52-0.81)
BSS	115	3,681	530	15,765	21.7	(18.3-25.5)	23.3	(22.7-24.0)	0.93	(0.77-1.12)
BSHC	37	1,366	230	6,515	16.1	(11.6-21.5)	21.0	(20.0-22.0)	0.77	(0.54-1.06)
Total NZ	**977**	**16,745**	**7,220**	**83,990**	**13.5**	**(12.8-14.3)**	**19.9**	**(19.7-20.2)**	**0.68**	**(0.64-0.72)**

Ratios below one are unfavourable to Māori.

* Eligible population is based on the 2005 projected population.

Table 1a.4.2: Coverage by age group, 2 years (July 2004 to June 2006)

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			
50-54 years										
Ak & Nth**	1,754	18,859	4,450	41,375	39.4	(38.0-40.9)	45.6	(45.1-46.1)	0.86	(0.82-0.91)
- BSWN	180	1847								
- BSCM	234	2100								
- BSAL	1340	14912								
BSM	1,184	9,305	3,540	16,485	33.4	(31.9-35.0)	56.4	(55.7-57.2)	0.59	(0.56-0.63)
BSCtoC	679	8,504	2,665	14,425	25.5	(23.8-27.2)	59.0	(58.1-59.8)	0.43	(0.40-0.47)
BSC	456	7,382	1,230	12,690	37.1	(34.4-39.8)	58.2	(57.3-59.0)	0.64	(0.58-0.70)
BSS	651	18,307	965	21,695	67.5	(64.4-70.4)	84.4	(83.9-84.9)	0.80	(0.74-0.86)
BSHC	182	5,912	455	8,705	40.0	(35.5-44.7)	67.9	(66.9-68.9)	0.59	(0.51-0.68)
Total NZ	**4,906**	**68,269**	**13,305**	**115,375**	**36.9**	**(36.1-37.7)**	**59.2**	**(58.9-59.5)**	**0.62**	**(0.61-0.64)**
55-59 years										
Ak &Nth	1,534	19,799	3,410	37,565	45.0	(43.3-46.7)	52.7	(52.2-53.2)	0.85	(0.81-0.90)
BSWN	208	2657								
BSCM	204	2054								
BSAL	1122	15088								
BSM	1,050	9,950	2,580	15,725	40.7	(38.8-42.6)	63.3	(62.5-64.0)	0.64	(0.60-0.69)
BSCtoC	733	8,489	2,000	13,565	36.7	(34.5-38.8)	62.6	(61.8-63.4)	0.59	(0.54-0.63)
BSC	409	7,648	910	11,995	44.9	(41.7-48.2)	63.8	(62.9-64.6)	0.70	(0.64-0.78)
BSS	516	16,328	720	20,715	71.7	(68.2-74.9)	78.8	(78.3-79.4)	0.91	(0.83-0.99)
BSHC	167	5,627	300	8,220	55.7	(49.8-61.4)	68.5	(67.4-69.5)	0.81	(0.69-0.95)
Total NZ	**4,409**	**67,841**	**9,920**	**107,785**	**44.4**	**(43.5-45.4)**	**62.9**	**(62.7-63.2)**	**0.71**	**(0.68-0.73)**
60-64 years										
Ak &Nth	1,160	15,678	2,410	28,615	48.1	(46.1-50.1)	54.8	(54.2-55.4)	0.88	(0.83-0.93)
BSWN	140	1996								
BSCM	140	1730								
BSAL	880	11952								
BSM	831	9,049	1,960	13,045	42.4	(40.2-44.6)	69.4	(68.6-70.2)	0.61	(0.57-0.66)
BSCtoC	538	7,116	1,490	10,975	36.1	(33.7-38.6)	64.8	(63.9-65.7)	0.56	(0.51-0.61)
BSC	286	6,124	600	9,075	47.7	(43.6-51.7)	67.5	(66.5-68.4)	0.71	(0.63-0.80)
BSS	366	12,952	530	15,765	69.1	(64.9-73.0)	82.2	(81.5-82.8)	0.84	(0.76-0.93)
BSHC	118	4,724	230	6,515	51.3	(44.6-57.9)	72.5	(71.4-73.6)	0.71	(0.58-0.85)
Total NZ	**3,299**	**55,643**	**7,220**	**83,990**	**45.7**	**(44.5-46.9)**	**66.2**	**(65.9-66.6)**	**0.69**	**(0.67-0.71)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* Eligible population is based on the 2005 projected population.

** Ak & Nth (Auckland and North) presents data from BSAN, BSWN, BSCM and BSAL combined. Two-year coverage rates are not shown for BSWN, BSCM and BSA because they have been screening less than 2 years.

Overall coverage rates remain below 70% in each age group. In each age group the coverage of Māori women was around two-thirds that of non-Māori women.

Coverage was lowest for Māori women in the group aged 50 to 54 years for both the 6 month period (9.7%) and the 2 year period (36.9%) and the gap between Māori and non-Māori coverage

was widest in this group. The higher proportion of eligible Māori women in this age group means the low coverage in this age group has a differential impact on the overall coverage rates for Māori women. No Lead Provider achieved the target coverage of 17.5% for Māori women in the 50-54 year age group during the 6 month period, which will make it harder to achieve the target for the next two years. BSCtoC had the lowest 2 year coverage rate for Māori women aged 50-54 years (26%) compared to non-Māori women (59%).

Several providers met the target of 17.5% for Māori women in the 55-59 year age group during the 6 month period including BSAL, BSC, BSS and BSHC but the overall BSA rate for Māori women was only 14% (compared to 20% for non-Māori). The low rates in BSM and BSCtoC regions, which together include 46% of the eligible Māori population aged 55-59 years, would have impacted on the overall Māori rate.

In the 60-64 year age group, only BSS met the target for Māori women during the 2 year period and the 6 month period. BSAL and BSHC were also within the target range for the 6 month period. However, the national BSA coverage in this age group was below target in both periods. Similar to the other age groups, the coverage of Māori women was just over two-thirds that of non-Māori aged 60-64 years.

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, 6 months (January to June 2006) and 2 years (July 2004 to June 2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
6 months (previous screen 01/10/2003 to 30/03/2004)							
-BSWN*							
-BSCM*							
-BSAL*							
BSM	572	819	69.8 (66.6-73.0)	4,495	5,589	80.4 (79.4-81.5)	0.87 (0.79-0.95)
BSCtoC	372	516	72.1 (68.0-75.9)	4,458	5,758	77.4 (76.3-78.5)	0.93 (0.84-1.04)
BSC	244	328	74.4 (69.3-79.0)	4,286	5,066	84.6 (83.6-85.6)	0.88 (0.77-1.00)
BSS	215	242	88.8 (84.2-92.5)	8,303	9,038	91.9 (91.3-92.4)	0.97 (0.84-1.11)
BSHC	73	89	82.0 (72.5-89.4)	2,782	3,194	87.1 (85.9-88.2)	0.94 (0.74-1.19)
Total	**1,476**	**1,994**	**74.0 (72.0-75.9)**	**24,324**	**28,645**	**84.9 (84.5-85.3)**	**0.87 (0.83-0.92)**
2 years (previous screen 01/04/2002 to 30/03/2004)							
- BSWN*							
- BSCM*							
- BSAL*							
BSM	1,786	2,638	67.7 (65.9-69.5)	19,692	24,523	80.3 (79.8-80.8)	0.84 (0.80–0.89)
BSCtoC	1,435	1,913	75.0 (73.0-76.9)	17,435	21,013	83.0 (82.5-83.5)	0.90 (0.86–0.95)
BSC	706	956	73.8 (70.9-76.6)	14,415	17,125	84.2 (83.3-84.7)	0.88 (0.81–0.95)
BSS	1,127	1,309	86.1 (84.1-87.9)	36,819	40,428	91.1 (90.8-91.3)	0.95 (0.89–1.00)
BSHC	344	429	80.2 (76.1-83.9)	12,972	14,874	87.2 (86.7-87.7)	0.92 (0.82–1.02)
Total	**5,398**	**7,245**	**74.5 (73.5-75.5)**	**101,333**	**117,963**	**85.9 (85.7-86.1)**	**0.87 (0.84–0.89)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* Data not yet available for BSWN, BSCM, BSAL

Overall the target of over 85% re-screened within 27 months was not achieved for Māori women in BSA with only 74% rescreened during the 2-year period and no improvement over time. Two providers reached the target or came close to it for Māori women (BSS and BSHC). The target was reached for non-Māori women overall with 85% rescreened.

Table 1b.2: Percentage of women aged 50–64 years, who return for a screen who are re-screened with 20-24 months, 6 months (January to June 2006) and 2 years (July 2004 to June 2006)

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 rescreened within 27 months	% 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 rescreened within 27 months	% of eligible women rescreened within 20 to 24 months (95% CI)	
Last 6 months (01/10/2003 to 30/03/2004)							
BSWN*							
BSCM*							
BSAL*							
BSM	492	572	86.0 (82.9-88.8)	3,774	4,495	84.0 (82.9-85.0)	1.02 (0.93-1.13)
BSCtoC	250	372	67.2 (62.2-72.0)	2,276	4,458	51.1 (49.6-52.5)	1.32 (1.15-1.50)
BSC	192	244	78.7 (73.0-83.7)	3,342	4,286	78.0 (76.7-79.2)	1.01 (0.87-1.17)
BSS	208	215	96.7 (93.4-98.7)	7,987	8,303	96.2 (95.8-96.6)	1.01 (0.87-1.15)
BSHC	44	73	60.3 (48.1-71.5)	1,461	2,782	52.5 (50.6-54.4)	1.15 (0.83-1.55)
Total BSA	**1,186**	**1,476**	**80.4(78.2-82.4)**	**18,840**	**24,324**	**77.5 (76.9-78.0)**	**1.04 (0.98-1.10)**
Last 2 years (01/04/2002 to 30/03/2004)							
BSWN*							
BSCM*							
BSAL*							
BSM	1,329	1,786	74.4 (72.3-76.4)	15,275	19,692	77.6 (77.0-78.2)	0.96 (0.91-1.01)
BSCtoC	1,077	1,435	75.1 (72.7-77.3)	11,322	17,435	64.9 (64.2-65.6)	1.16 (1.08-1.23)
BSC	583	706	82.6 (79.6-85.3)	11,981	14,415	83.1 (82.5-83.7)	0.99 (0.91-1.08)
BSS	1,017	1,127	90.2 (88.4-91.9)	33,822	36,819	91.9 (91.6-92.1)	0.98 (0.92-1.05)
BSHC	230	344	66.9 (61.6-71.8)	9,328	12,972	71.9 (71.1-72.7)	0.93 (0.81-1.06)
Total BSA	**4,236**	**5,398**	**78.5(77.4-79.6)**	**81,728**	**101,333**	**80.7(80.4-80.9)**	**0.97 (0.94-1.00)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* Data not yet available for BSWN, BSCM, BSAL

Among women who were rescreened within 27 months, the target of 75% screened within 20-24 months was reached for both Māori and non-Māori women overall in the two-year period and the six-month period. There was no significant difference between the overall rates for Māori and non-Māori. Over the two-year period most providers met the target for Māori women.

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 (July 2004-June 2006)

	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*	173	304	56.9 (51.1-62.5)	4,180	5,534	75.5 (74.4-76.7)	0.75 (0.64-0.88)
BSCM*	459	567	81.0 (77.5-84.1)	5,074	5,811	87.3 (86.4-88.2)	0.93 (0.84-1.02)
BSAN/BSAL	1,528	2,178	70.2 (68.2-72.1)	28,645	34,980	81.9 (81.5-82.3)	0.86 (0.81-0.90)
BSM	1,543	1,908	80.9 (79.0-82.6)	19,801	22,154	89.4 (89.0-89.8)	0.90 (0.86-0.95)
BSCtoC	1,085	1,397	77.7 (75.4-79.8)	19,201	21,459	89.5 (89.1-89.9)	0.87 (0.82-0.92)
BSC	687	851	80.7 (77.9-83.3)	14,249	16,188	88.0 (87.5-88.5)	0.92 (0.85-0.99)
BSS	1,043	1,288	81.0 (78.7-83.1)	38,567	44,290	87.1 (86.8-87.4)	0.93 (0.87-0.99)
BSHC	282	364	77.5 (72.8-81.7)	10,033	11,608	86.4 (85.8-87.0)	0.90 (0.79-1.01)
Total	**6,800**	**8,857**	**76.8 (75.9-77.7)**	**139,750**	**162,024**	**86.3 (86.1-86.4)**	**0.89 (0.87-0.91)**
Mobile unit							
BSWN*	123	224	54.9 (48.1-61.5)	727	966	75.3 (72.4-78.0)	0.73 (0.60-0.88)
BSCM*	3	11	27.3 (6.0-61.0)	29	74	39.2 (28.0-51.2)	0.70 (0.14-2.25)
BSAN/BSAL	691	1,166	59.3 (56.4-62.1)	5,780	7,375	78.4 (77.4-79.3)	0.76 (0.70-0.82)
BSM	867	1,316	65.9 (63.2-68.4)	6,703	8,011	83.7 (82.8-84.5)	0.79 (0.73-0.85)
BSCtoC	345	588	58.7 (54.6-62.7)	2,784	3,306	84.2 (82.9-85.4)	0.70 (0.62-0.78)
BSC	245	326	75.2 (70.1-79.8)	4,957	5,583	88.8 (87.9-89.6)	0.85 (0.74-0.96)
BSS	246	303	81.2 (76.3-85.4)	4,719	5,355	88.1 (87.2-89.0)	0.92 (0.81-1.05)
BSHC	104	117	88.9 (81.7-93.9)	4,809	5,175	92.9 (92.2-93.6)	0.96 (0.78-1.16)
Total	**2,624**	**4,051**	**64.8 (63.3-66.2)**	**30,508**	**35,845**	**85.1 (84.7-85.5)**	**0.76 (0.73-0.79)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.
* BSWN and BSCM data is for less than 2 years

Table 2a.2: Percentage of women aged 50–64 years having 4 films or less by type of screening unit, 6 years (July 2000-June 2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
Fixed site							
BSWN*							
BSCM*							
BSAN/BSAL	6,073	8,361	72.6 (71.7-73.6)	105,037	125,845	83.5 (83.3-83.7)	0.87 (0.85-0.89)
BSM	4,343	5,402	80.4 (79.3-81.4)	56,148	62,745	89.5 (89.2-89.7)	0.90 (0.87-0.93)
BSCtoC	3,330	4,386	75.9 (74.6-77.2)	54,703	61,761	88.6 (88.3-88.8)	0.86 (0.83-0.89)
BSC	1,487	2,112	70.4 (68.4-72.3)	35,093	42,882	81.8 (81.5-82.2)	0.86 (0.82-0.91)
BSS	2,655	3,357	79.1 (77.7-80.5)	101,039	119,028	84.9 (84.7-85.1)	0.93 (0.90-0.97)
BSHC	740	983	75.3 (72.5-77.9)	26,953	32,720	82.4 (82.0-82.8)	0.91 (0.85-0.98)
Total	**19,260**	**25,472**	**75.6 (75.1-76.1)**	**388,227**	**456,326**	**85.1 (85.0-85.2)**	**0.89 (0.88-0.90)**
Mobile unit							
BSWN*							
BSCM*							
BSAN/BSAL	2,522	3,574	70.6 (69.0-72.1)	15,014	18,099	83.0 (82.4-83.5)	0.85 (0.82-0.89)
BSM	2,420	3,660	66.1 (64.6-67.7)	18,770	22,327	84.1 (83.6-84.5)	0.79 (0.75-0.82)
BSCtoC	1,019	1,672	60.9 (58.6-63.3)	7,412	8,758	84.6 (83.9-85.4)	0.72 (0.67-0.77)
BSC	747	1,081	69.1 (66.3-71.8)	14,122	16,826	83.9 (83.4-84.5)	0.82 (0.76-0.89)
BSS	655	899	72.9 (69.8-75.7)	14,423	16,896	85.4 (84.8-85.9)	0.85 (0.79-0.92)
BSHC	301	372	80.9 (76.5-84.8)	13,602	15,486	87.8 (87.3-88.3)	0.92 (0.82-1.03)
Total	**7,790**	**11,493**	**67.8 (66.9-68.6)**	**84,099**	**99,432**	**84.6 (84.4-84.8)**	**0.80 (0.78-0.82)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* Data not yet available for BSWN, BSCM.

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 last two years the target of 80% of women screened having 4 films or less was not met for Māori women in fixed units or mobile units for the BSA programme overall, while it was exceeded for non-Māori women in both types of units. Māori women screened in mobile units were more likely to have more than four films than those in fixed units. The disparity between Māori and non-Māori was greater in mobile units.

Most providers had estimates above 80% for non-Māori women screened at fixed sites, with the exception of BSWN, but only four providers reached 80% for Māori women. In the mobile sites only BSS and BSHC met the target for Māori women in the two-year period. For non-Māori women screened in mobile sites BSWN, BSCM and BSAL did not meet the target.

Trends over time in fixed units: BSC showed an improvement in rates for Māori women at fixed sites with the 6 year rate of 70% having 4 films or less increasing to 81% during the last 2 years. There were no significant changes for Māori women in other providers. Four providers showed improvements in rates for non-Māori women between the 6 year and 2 year period results – BSCtoC, BSC, BSS and BSHC.

Trends over time in mobile units: BSC, BSS and BSHC showed improvement in rates for Māori screened in mobile units during the 6 years. There was no change in the rates for BSCtoC and BSM mobile

sites. Rates for Māori women in BSAL may have got worse during this period. BSC, BSS, BSHC showed improvement for non-Māori women in mobile units while others showed no change (apart from a possible decrease in BSAL).

Comment: Given the higher likelihood for Māori women of being screened in mobile units the increased disparity between Māori and non-Māori women in mobile units is of concern. There is a differential impact on Māori women within BSA, with Māori women at increased risk of higher levels of radiation exposure and potential discomfort. It is interesting that there was no overall difference between fixed and mobile sites for non-Māori women. The reasons for the disparity in the number of films taken need to be investigated further.

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 (July 2004 to June 2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
Fixed Unit							
BSWN*	2	304	0.7 (0.1-2.4)	7	5,534	0.1 (0.1-0.3)	5.20 (0.53-27.32)
BSCM*	1	567	0.2 (0.0-1.0)	7	5,811	0.1 (0.0-0.2)	1.46 (0.03-11.40)
BSAL	43	2,178	2.0 (1.4-2.7)	96	34,980	0.3 (0.2-0.3)	7.19 (4.90-10.41)
BSM	5	1,908	0.3 (0.1-0.6)	29	22,154	0.1 (0.1-0.2)	2.00 (0.61-5.23)
BSCtoC	2	1,397	0.1 (0.0-0.5)	36	21,459	0.2 (0.1-0.2)	0.85 (0.10-3.31)
BSC	4	851	0.5 (0.1-1.2)	48	16,188	0.3 (0.2-0.4)	1.59 (0.42-4.33)
BSS	2	1,288	0.2 (0.0-0.6)	111	44,290	0.3 (0.2-0.3)	0.62 (0.07-2.29)
BSHC	3	364	0.8 (0.2-2.4)	17	11,608	0.1 (0.1-0.2)	5.63 (1.06-19.46)
Total BSA	**62**	**8,857**	**0.7 (0.5-0.9)**	**351**	**162,024**	**0.2 (0.2-0.2)**	**3.23 (2.43-4.24)**
Mobile unit							
BSWN*	12	224	5.4 (2.8-9.2)	80	966	8.3 (6.6-10.2)	0.65 (0.32-1.19)
BSCM*	0	11	0.0 (0.0-28.5)	4	74	5.4 (1.5-13.3)	
BSAL	101	1,166	8.7 (7.1-10.4)	412	7,375	5.6 (5.1-6.1)	1.55 (1.23-1.93)
BSM	78	1,316	5.9 (4.7-7.3)	302	8,011	3.8 (3.4-4.2)	1.57 (1.21-2.02)
BSCtoC	24	588	4.1 (2.6-6.0)	110	3,306	3.3 (2.7-4.0)	1.23 (0.75-1.92)
BSC	20	326	6.1 (3.8-9.3)	209	5,583	3.7 (3.3-4.3)	1.64 (0.98-2.60)
BSS	4	303	1.3 (0.4-3.3)	125	5,355	2.3 (1.9-2.8)	0.57 (0.15-1.48)
BSHC	5	117	4.3 (1.4-9.7)	78	5,175	1.5 (1.2-1.9)	2.84 (0.90-6.90)
Total BSA	**244**	**4,051**	**6.0 (5.3-6.8)**	**1,320**	**35,845**	**3.7 (3.5-3.9)**	**1.64 (1.42-1.88)**

Ratios above one are unfavourable to Māori. Shaded boxes show target has not been met (proportion is too high).

* BSWN and BSCM data is for less than 2 years

Fixed sites: During the two-year period the percentage of Māori women recalled for technical reasons to complete a screening episode at fixed sites was outside the target of less than 0.5%, while the percentage of non-Māori women recalled was within the target range. Māori women were recalled at three times the rate of non-Māori women in BSA as a whole. However, most providers did achieve the target for Māori women. The recall rate for non-Māori women did not change over the 6-year period. There were no significant changes over time in other regions.

Mobile sites: The overall rate of technical recall for Māori women screened in mobile units during the last two years was 6.0%, double the target of less than 3% for this indicator. This was 64% higher than the non-Māori rate of 3.7%.

Table 2b.2: Women aged 50–64 years having technical recall as a percentage of women screened, by type of screening unit, 6 years (July 2000 to June 2006)

	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*							
BSCM*							
BSAN/BSAL	83	8,361	1.0 (0.8-1.2)	330	125,845	0.3 (0.2-0.3)	3.79 (2.94-4.83)
BSM	17	5,402	0.3 (0.2-0.5)	95	62,745	0.2 (0.1-0.2)	2.08 (1.16-3.51)
BSCtoC	64	4,386	1.5 (1.1-1.9)	263	61,761	0.4 (0.4-0.5)	3.43 (2.57-4.52)
BSC	23	2,112	1.1 (0.7-1.6)	272	42,882	0.6 (0.6-0.7)	1.72 (1.07-2.63)
BSS	18	3,357	0.5 (0.3-0.8)	414	119,028	0.3 (0.3-0.4)	1.54 (0.90-2.47)
BSHC	6	983	0.6 (0.2-1.3)	93	32,720	0.3 (0.2-0.3)	2.15 (0.77-4.85)
Total	**214**	**25,472**	**0.8 (0.7-1.0)**	**1,481**	**456,326**	**0.3 (0.3-0.3)**	**2.59 (2.23-2.99)**
Mobile unit							
BSWN*							
BSCM*							
BSAN/BSAL	219	3,574	6.1 (5.4-7.0)	794	18,099	4.4 (4.1-4.7)	1.40 (1.20-1.62)
BSM	198	3,660	5.4 (4.7-6.2)	831	22,327	3.7 (3.5-4.0)	1.45 (1.24-1.70)
BSCtoC	94	1,672	5.6 (4.6-6.8)	374	8,758	4.3 (3.9-4.7)	1.32 (1.04-1.65)
BSC	56	1,081	5.2 (3.9-6.7)	747	16,826	4.4 (4.1-4.8)	1.17 (0.87-1.53)
BSS	20	899	2.2 (1.4-3.4)	324	16,896	1.9 (1.7-2.1)	1.16 (0.70-1.82)
BSHC	17	372	4.6 (2.7-7.2)	255	15,486	1.6 (1.5-1.9)	2.78 (1.59-4.53)
Total	**616**	**11,493**	**5.4 (5.0-5.8)**	**3,409**	**99,432**	**3.4 (3.3-3.5)**	**1.56 (1.43-1.70)**

Ratios above one are unfavourable to Māori. Shaded boxes show target has not been met.

* Data not yet available for BSWN, BSCM.

Comment: During the two-year period, in total 2.4% of Māori women screened and 0.8% of non-Māori women screened were recalled for technical reasons. Māori women were recalled 2.8 times more often than non-Māori women. This was partly due to the higher proportion of Māori women screened in mobile units where the adequacy of films cannot be assessed by the MRT before a woman leaves. This underscores the need to improve the technical capacity of mobile units given the differential impact on Māori women and the accessibility issues for women using these sites. However, there were also disparities between Māori and non-Māori within each type of screening site. The reasons for these disparities need investigation.

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 (July 2004 to June 2006)

	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*	22	1,433	1.5 (1.0-2.3)	402	24,166	1.7 (1.5-1.8)	0.92 (0.57-1.42)
BSCM*	27	2,452	1.1 (0.7-1.6)	382	24,349	1.6 (1.4-1.7)	0.70 (0.46-1.04)
BSAN/BSAL	149	9,804	1.5 (1.3-1.8)	1,934	149,870	1.3 (1.2-1.3)	1.18 (0.99-1.39)
BSM	63	8,253	0.8 (0.6-1.0)	719	92,663	0.8 (0.7-0.8)	0.98 (0.75-1.27)
BSCtoC	35	6,102	0.6 (0.4-0.8)	777	89,037	0.9 (0.8-0.9)	0.66 (0.45-0.92)
BSC	19	3,687	0.5 (0.3-0.8)	562	67,623	0.8 (0.8-0.9)	0.62 (0.37-0.98)
BSS	74	5,548	1.3 (1.0-1.7)	2,317	185,550	1.2 (1.2-1.3)	1.07 (0.84-1.35)
BSHC	27	1,590	1.7 (1.1-2.5)	636	48,996	1.3 (1.2-1.4)	1.31 (0.86-1.92)
Total	**416**	**38,869**	**1.1 (1.0-1.2)**	**7,729**	**682,254**	**1.1 (1.1-1.2)**	**0.94 (0.85-1.04)**
Mobile unit							
BSWN*	7	1,070	0.7 (0.3-1.3)	103	4,274	2.4 (2.0-2.9)	0.27 (0.11-0.58)
BSCM*	1	57	1.8 (0.0-9.4)	2	378	0.5 (0.1-1.9)	3.32 (0.06-63.69)
BSAN/BSAL	55	5,498	1.0 (0.8-1.3)	355	32,081	1.1 (1.0-1.2)	0.90 (0.67-1.20)
BSM	34	6,067	0.6 (0.4-0.8)	205	34,140	0.6 (0.5-0.7)	0.93 (0.63-1.35)
BSCtoC	36	2,804	1.3 (0.9-1.8)	140	14,063	1.0 (0.8-1.2)	1.29 (0.87-1.87)
BSC	4	1,452	0.3 (0.1-0.7)	16	23,272	0.1 (0.0-0.1)	4.01 (0.97-12.42)
BSS	6	1,315	0.5 (0.2-1.0)	175	22,517	0.8 (0.7-0.9)	0.59 (0.21-1.30)
BSHC	5	491	1.0 (0.3-2.4)	65	21,282	0.3 (0.2-0.4)	3.33 (1.05-8.19)
Total	**148**	**18,754**	**0.8 (0.7-0.9)**	**1,061**	**152,007**	**0.7 (0.7-0.7)**	**1.13 (0.95-1.34)**

Ratios above one are unfavourable to Māori.

* BSWN and BSCM data is for less than 2 years.

Table 2c.2: Rejected films as a percentage of total films taken, 6 years (July 2000 to June 2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Total films rejected	Total films taken	% of films (95% CI)	Total films rejected	Total films taken	% of films (95% CI)	
Fixed unit							
BSWN*							
BSCM*							
BSAN/BSAL	475	37,164	1.3 (1.2-1.4)	6,033	534,920	1.1 (1.1-1.2)	1.13 (1.03-1.24)
BSM	189	23,453	0.8 (0.7-0.9)	2,074	262,626	0.8 (0.8-0.8)	1.02 (0.87-1.18)
BSCtoC	227	19,302	1.2 (1.0-1.3)	2,581	257,269	1.0 (1.0-1.0)	1.17 (1.02-1.34)
BSC	136	9,497	1.4 (1.2-1.7)	2,183	183,142	1.2 (1.1-1.2)	1.20 (1.00-1.43)
BSS	180	14,605	1.2 (1.1-1.4)	6,241	503,353	1.2 (1.2-1.3)	0.99 (0.85-1.15)
BSHC	48	4,370	1.1 (0.8-1.5)	1,935	141,454	1.4 (1.3-1.4)	0.80 (0.59-1.07)
Total	**1,304**	**112,276**	**1.2 (1.1-1.2)**	**21,831**	**1,931,279**	**1.1 (1.1-1.1)**	**1.03 (0.97-1.09)**
Mobile unit							
BSWN*							
BSCM*							
BSAN/BSAL	129	16,124	0.8 (0.7-0.9)	611	77,294	0.8 (0.7-0.9)	1.01 (0.83-1.23)
BSM	129	16,924	0.8 (0.6-0.9)	539	95,249	0.6 (0.5-0.6)	1.35 (1.10-1.64)
BSCtoC	127	7,927	1.6 (1.3-1.9)	515	37,268	1.4 (1.3-1.5)	1.16 (0.95-1.41)
BSC	17	4,883	0.3 (0.2-0.6)	154	71,486	0.2 (0.2-0.3)	1.62 (0.92-2.67)
BSS	24	4,048	0.6 (0.4-0.9)	458	71,991	0.6 (0.6-0.7)	0.93 (0.59-1.40)
BSHC	6	1,629	0.4 (0.1-0.8)	132	65,523	0.2 (0.2-0.2)	1.83 (0.66-4.09)
Total	**440**	**52,662**	**0.8 (0.8-0.9)**	**2,514**	**423,463**	**0.6 (0.6-0.6)**	**1.41 (1.27-1.56)**

Ratios above one are unfavourable to Māori.

* Data not yet available for BSWN, BSCM.

All lead providers met the target of less than 3% rejected films during the last two years and six years for Māori and non-Māori women, in each type of screening unit.

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 (July 2004-June 2006)

	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*	9	76	11.8 (5.6-21.3)	60	767	7.8 (6.0-10.0)	1.51 (0.66-3.07)
BSCM*	25	157	15.9 (10.6-22.6)	170	1,414	12.0 (10.4-13.8)	1.32 (0.83-2.02)
BSAN/BSAL	80	778	10.3 (8.2-12.6)	674	8,812	7.6 (7.1-8.2)	1.34 (1.05-1.70)
BSM	97	800	12.1 (9.9-14.6)	444	5,027	8.8 (8.1-9.7)	1.37 (1.09-1.71)
BSCtoC	48	372	12.9 (9.7-16.7)	376	4,748	7.9 (7.2-8.7)	1.63 (1.18-2.20)
BSC	37	308	12.0 (8.6-16.2)	468	4,701	10.0 (9.1-10.8)	1.21 (0.84-1.69)
BSS	25	321	7.8 (5.1-11.3)	738	8,455	8.7 (8.1-9.4)	0.89 (0.57-1.33)
BSHC	8	85	9.4 (4.2-17.7)	212	2,612	8.1 (7.1-9.2)	1.16 (0.49-2.33)
Total	**329**	**2,897**	**11.4 (10.2-12.6)**	**3,142**	**36,536**	**8.6 (8.3-8.9)**	**1.32 (1.18-1.48)**
Subsequent							
BSWN*	19	452	4.2 (2.5-6.5)	194	5,733	3.4 (2.9-3.9)	1.24 (0.73-1.99)
BSCM*	21	421	5.0 (3.1-7.5)	188	4,471	4.2 (3.6-4.8)	1.19 (0.72-1.87)
BSAN/BSAL	82	2,566	3.2 (2.5-4.0)	956	33,543	2.9 (2.7-3.0)	1.12 (0.88-1.41)
BSM	89	2,424	3.7 (3.0-4.5)	975	25,138	3.9 (3.6-4.1)	0.95 (0.75-1.18)
BSCtoC	59	1,613	3.7 (2.8-4.7)	508	20,017	2.5 (2.3-2.8)	1.44 (1.08-1.89)
BSC	38	869	4.4 (3.1-6.0)	597	17,070	3.5 (3.2-3.8)	1.25 (0.88-1.74)
BSS	40	1,270	3.1 (2.3-4.3)	1,290	41,190	3.1 (3.0-3.3)	1.01 (0.72-1.38)
BSHC	0	396	0.0 (0.0-0.9)	280	14,171	2.0 (1.8-2.2)	
Total	**348**	**10,011**	**3.5 (3.1-3.9)**	**4,988**	**161,333**	**3.1 (3.0-3.2)**	**1.12 (1.01-1.25)**

Ratios above one are unfavourable to Māori. Rates that exceeded the expected value have been shaded.
* BSWN and BSCM data is for less than 2 years

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Table 2d.2: Referral to assessment as a percentage of women screened, ages 50–64 years, 6 years (July 2000-June 2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Referred to assess-ment	No. of women screened	% of women screened (95% CI)	Referred to assess-ment	No. of women screened	% of women screened (95% CI)	
Initial							
BSWN*							
BSCM*							
BSAN/BSAL	431	4,074	10.6 (9.7-11.6)	3,702	44,753	8.3 (8.0-8.5)	1.28 (1.15-1.41)
BSM	309	2,935	10.5 (9.4-11.7)	1,558	21,130	7.4 (7.0-7.7)	1.43 (1.26-1.61)
BSCtoC	187	1,858	10.1 (8.7-11.5)	1,380	19,856	7.0 (6.6-7.3)	1.45 (1.24-1.69)
BSC	167	1,176	14.2 (12.3-16.3)	1,799	17,562	10.2 (9.8-10.7)	1.39 (1.18-1.63)
BSS	156	1,451	10.8 (9.2-12.5)	3,491	38,103	9.2 (8.9-9.5)	1.17 (0.99-1.38)
BSHC	34	308	11.0 (7.8-15.1)	808	9,077	8.9 (8.3-9.5)	1.24 (0.85-1.75)
Total BSA	**1,318**	**12,035**	**11.0 (10.4-11.5)**	**12,968**	**152,662**	**8.5 (8.4-8.6)**	**1.29 (1.22-1.36)**
Subsequent							
BSWN*							
BSCM*							
BSAN/BSAL	282	7,861	3.6 (3.2-4.0)	3,505	99,191	3.5 (3.4-3.7)	1.02 (0.90-1.15)
BSM	238	6,127	3.9 (3.4-4.4)	2,342	63,942	3.7 (3.5-3.8)	1.06 (0.92-1.21)
BSCtoC	124	4,200	3.0 (2.5-3.5)	1,388	50,663	2.7 (2.6-2.9)	1.08 (0.89-1.30)
BSC	85	2,017	4.2 (3.4-5.2)	1,543	42,146	3.7 (3.5-3.8)	1.15 (0.91-1.43)
BSS	92	2,805	3.3 (2.7-4.0)	3,598	97,821	3.7 (3.6-3.8)	0.89 (0.72-1.10)
BSHC	10	1,047	1.0 (0.5-1.7)	824	39,129	2.1 (2.0-2.3)	0.45 (0.22-0.84)
Total BSA	**871**	**24,930**	**3.5 (3.3-3.7)**	**13,582**	**403,096**	**3.4 (3.3-3.4)**	**1.04 (0.97-1.11)**

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

* Data not yet available for BSWN, BSCM.

Initial screens: During the last 2 years, 11.4% of Māori women screened by BSA for the first time were referred for assessment, a rate slightly higher than the expected value of less than 10% and a third higher than the non-Māori referral rate of 8.6%.

There were no statistically significant differences between providers although BSS and BSHC referral rates for Māori women were below the expected value. There were no significant changes in referral rates for Māori women over time. BSAL, BSM and BSCtoC showed significantly higher referral rates for Māori compared to non-Māori in the 2-year period. There were no significant changes in disparities over the 6-year period.

Among non-Māori women BSCM had a higher than expected referral rate at 12%. Referral rates for non-Māori women in BSM increased significantly during the 6-year period but remained within the expected value.

Subsequent screens: As expected the number of referrals for assessment among women receiving repeat screens was lower than the initial screens. The two-year overall rate for Māori women was 3.5%, similar to the non-Māori rate of 3.1% and within the desired value of less than 4%. There were no significant changes in Māori referral rates during the six years in any of the provider regions.

The referral rates for non-Māori women were within the desired range for most providers. BSHC had a significantly lower referral rate for non-Māori women than other providers.

BSCtoC was the only provider with a significantly higher referral rate for Māori compared to non-Māori women during the 2-year period (44% higher).

Comment: It is expected that referrals for further assessment will be higher from initial screens than from subsequent (or repeat) screening episodes (theoretically at two yearly intervals). The initial screen is the first screen within the BSA programme. It does not take account of any screens women may have had privately or before coming to BSA (more likely among non-Māori women). Therefore there may be some difference between Māori and non-Māori women in the true prevalent screens within the initial screen data. This makes the lower coverage of Māori women by BSA more critical with more Māori women likely to be missing out on early diagnosis of cancers.

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 (July 2004-June 2006)

	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*	6	76	7.9 (3.0-16.4)	45	767	5.9 (4.3-7.8)	1.35 (0.47-3.16)
BSCM*	23	157	14.6 (9.5-21.2)	156	1,414	11.0 (9.4-12.8)	1.33 (0.82-2.07)
BSAN/BSAL	61	778	7.8 (6.1-10.0)	552	8,812	6.3 (5.8-6.8)	1.25 (0.94-1.63)
BSM	77	800	9.6 (7.7-11.9)	405	5,027	8.1 (7.3-8.8)	1.19 (0.92-1.53)
BSCtoC	38	372	10.2 (7.3-13.8)	320	4,748	6.7 (6.0-7.5)	1.52 (1.05-2.13)
BSC	34	308	11.0 (7.8-15.1)	439	4,701	9.3 (8.5-10.2)	1.18 (0.81-1.68)
BSS	23	321	7.2 (4.6-10.6)	659	8,455	7.8 (7.2-8.4)	0.92 (0.58-1.39)
BSHC	6	85	7.1 (2.6-14.7)	189	2612	7.2 (6.3-8.3)	0.98 (0.35-2.16)
Total	268	2897	9.3 (8.2-10.4)	2,765	36,536	7.6 (7.3-7.8)	1.22 (1.07-1.39)
Subsequent							
BSWN*	12	452	2.7 (1.4-4.6)	145	5,733	2.5 (2.1-3.0)	1.05 (0.53-1.89)
BSCM*	19	421	4.5 (2.7-7.0)	170	4,471	3.8 (3.3-4.4)	1.19 (0.70-1.91)
BSAN/BSAL	62	2,566	2.4 (1.9-3.1)	751	33,543	2.2 (2.1-2.4)	1.08 (0.82-1.40)
BSM	69	2,424	2.8 (2.2-3.6)	832	25,138	3.3 (3.1-3.5)	0.86 (0.66-1.10)
BSCtoC	38	1,613	2.4 (1.7-3.2)	395	20,017	2.0 (1.8-2.2)	1.19 (0.83-1.67)
BSC	28	869	3.2 (2.2-4.6)	498	17,070	2.9 (2.7-3.2)	1.10 (0.73-1.62)
BSS	28	1,270	2.2 (1.5-3.2)	1,082	41,190	2.6 (2.5-2.8)	0.84 (0.56-1.22)
BSHC	0	396	0.0 (0.0-0.9)	217	14,171	1.5 (1.3-1.7)	
Total	**256**	**10,011**	**2.6 (2.3-2.9)**	**4,090**	**161,333**	**2.5 (2.5-2.6)**	**1.04 (0.89-1.14)**

Ratios above one are unfavourable to Māori. Rates that exceeded the expected target are shaded.
* BSWN and BSCM data is for less than 2 years.

Initial screens: The overall rate of false positives for Māori women having initial screens during the 2-year period was 9.3%, close to the expected value of less than 9% and a fifth higher than the rate for non-Māori women of 7.6%. There were no statistically significant differences between lead providers in the rates for Māori women but the expected value was achieved in the BSS, BSAL and BSWN regions. No providers met the desired target of less than 6% for Māori women in the 2-year period. There were no significant changes in rates for Māori women over the 6-year period.

Subsequent screens: The overall rate of false positives among Māori women having repeat screens was 2.6%, within the desired value of less than 3% and similar to the non-Māori rate of 2.5%. All providers met the expected value of less than 4% for Māori women except BSCM. There were no significant differences between Māori and non-Māori rates in any of the providers.

Comment: The overall disparity between Māori and non-Māori false positive rates was a third lower than the disparity in rates of referral to assessment (a ratio of 1.22 compared to 1.32).

Table 2e.2: Number with false positive results as a percentage of women screened, 6 years (July 2000-June 2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
Initial							
BSWN*							
BSCM*							
BSAN/BSAL	350	4,074	8.6 (7.7-9.5)	3,152	44,753	7.0 (6.8-7.3)	1.22 (1.09-1.36)
BSM	257	2,935	8.8 (7.8-9.8)	1,418	21,130	6.7 (6.4-7.1)	1.30 (1.14-1.49)
BSCtoC	154	1,858	8.3 (7.1-9.6)	1,187	19,856	6.0 (5.7-6.3)	1.39 (1.16-1.64)
BSC	151	1,176	12.8 (11.0-14.9)	1,646	17,562	9.4 (8.9-9.8)	1.37 (1.15-1.62)
BSS	140	1,451	9.6 (8.2-11.3)	3,170	38,103	8.3 (8.0-8.6)	1.16 (0.97-1.37)
BSHC	28	308	9.1 (6.1-12.9)	726	9,077	8.0 (7.4-8.6)	1.14 (0.75-1.66)
Total	**1,109**	**12,035**	**9.2 (8.7-9.7)**	**11,500**	**152,662**	**7.5 (7.4-7.7)**	**1.22 (1.15-1.30)**
Subsequent							
BSWN*							
BSCM*							
BSAN/BSAL	228	7,861	2.9 (2.5-3.3)	2,886	99,191	2.9 (2.8-3.0)	1.00 (0.87-1.14)
BSM	187	6,127	3.1 (2.6-3.5)	1,989	63,942	3.1 (3.0-3.2)	0.98 (0.84-1.14)
BSCtoC	85	4,200	2.0 (1.6-2.5)	1,111	50,663	2.2 (2.1-2.3)	0.92 (0.73-1.15)
BSC	67	2,017	3.3 (2.6-4.2)	1,286	42,146	3.1 (2.9-3.2)	1.09 (0.84-1.39)
BSS	72	2,805	2.6 (2.0-3.2)	3,077	97,821	3.1 (3.0-3.3)	0.82 (0.64-1.03)
BSHC	10	1,047	1.0 (0.5-1.7)	638	39,129	1.6 (1.5-1.8)	0.59 (0.28-1.08)
Total	**680**	**24,930**	**2.7 (2.5-2.9)**	**11,302**	**403,096**	**2.8 (2.8-2.9)**	**0.97 (0.90-1.05)**

Ratios above one are unfavourable to Māori. Rates that exceeded the expected target are shaded.

* Data not yet available for BSWN, BSCM.

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 (July 2004 to June 2006)

	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*	1	9	11.1 (0.3-48.2)	9	60	15.0 (7.1-26.6)	0.74 (0.02-5.35)
BSCM*	2	25	8.0 (1.0-26.0)	11	170	6.5 (3.3-11.3)	1.24 (0.13-5.66)
BSAN/BSAL	14	80	17.5 (9.9-27.6)	76	674	11.3 (9.0-13.9)	1.55 (0.81-2.77)
BSM	15	97	15.5 (8.9-24.2)	35	444	7.9 (5.6-10.8)	1.96 (1.00-3.69)
BSCtoC	5	48	10.4 (3.5-22.7)	36	376	9.6 (6.8-13.0)	1.09 (0.33-2.78)
BSC	3	37	8.1 (1.7-21.9)	21	468	4.5 (2.8-6.8)	1.81 (0.35-6.05)
BSS	2	25	8.0 (1.0-26.0)	75	738	10.2 (8.1-12.6)	0.79 (0.09-2.94)
BSHC	1	8	12.5 (0.3-52.7)	15	212	7.1 (4.0-11.4)	1.77 (0.04-11.48)
Total	**43**	**329**	**13.1 (9.6-17.2)**	**278**	**3,142**	**8.8 (7.9-9.9)**	**1.48 (1.05-2.04)**
Subsequent							
BSWN*	3	19	15.8 (3.4-39.6)	35	194	18.0 (12.9-24.2)	0.88 (0.17-2.78)
BSCM*	2	21	9.5 (1.2-30.4)	15	188	8.0 (4.5-12.8)	1.19 (0.13-5.13)
BSAN/BSAL	15	82	18.3 (10.6-28.4)	169	956	17.7 (15.3-20.2)	1.03 (0.57-1.76)
BSM	16	89	18.0 (10.6-27.5)	129	975	13.2 (11.2-15.5)	1.36 (0.75-2.29)
BSCtoC	19	59	32.2 (20.6-45.6)	95	508	18.7 (15.4-22.4)	1.72 (0.99-2.84)
BSC	10	38	26.3 (13.4-43.1)	87	597	14.6 (11.8-17.7)	1.81 (0.84-3.48)
BSS	12	40	30.0 (16.6-46.5)	200	1,290	15.5 (13.6-17.6)	1.94 (0.98-3.46)
BSHC	0	0		53	280	18.9 (14.5-24.0)	
Total	**77**	**348**	**22.1 (17.9-26.9)**	**783**	**4,988**	**15.7 (14.7-16.7)**	**1.41 (1.10-1.78)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

Initial screens: Overall 13.1% of Māori women referred to assessment from initial screens during the 2-year period were diagnosed with cancer, nearly 50% higher than the non-Māori percentage of 8.8% and well above the target value or 9% or more. There were no statistically significant differences between providers in the proportions of referred Māori women diagnosed with cancer. There was no evidence of changes in positive predictive values over time for Māori or non-Māori during the 6-year period.

Subsequent screens: The proportion of cancers diagnosed among Māori women referred from subsequent screens was higher than the percentage from initial screens. 22% of Māori women referred for assessment during the 2-year period were diagnosed with cancer, 41% higher than the non-Māori proportion of 16%. All providers met the target value for Māori women (excluding BSHC where no Māori women were referred). There were no statistically significant differences

between providers. There were no significant changes over time during the 6-year period in any of the Māori or non-Māori rates.

Table 2f.2: Cancers as a percentage of referrals to assessment, 6 years (July 2000 to June 2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of cancers	No. of referrals	% of referrals (95% CI)	No. of cancers	No. of referrals	% of referrals (95% CI)	
Initial							
BSWN*							
BSCM*							
BSAN/BSAL	61	431	14.2 (11.0-17.8)	425	3,702	11.5 (10.5-12.6)	1.23 (0.93-1.62)
BSM	44	309	14.2 (10.5-18.6)	128	1,558	8.2 (6.9-9.7)	1.73 (1.20-2.46)
BSCtoC	23	187	12.3 (8.0-17.9)	144	1,380	10.4 (8.9-12.2)	1.18 (0.72-1.84)
BSC	13	167	7.8 (4.2-12.9)	123	1,799	6.8 (5.7-8.1)	1.14 (0.59-2.02)
BSS	14	156	9.0 (5.0-14.6)	301	3,491	8.6 (7.7-9.6)	1.04 (0.56-1.77)
BSHC	3	34	8.8 (1.9-23.7)	59	808	7.3 (5.6-9.3)	1.21 (0.24-3.71)
Total	**161**	**1,318**	**12.2 (10.5-14.1)**	**1,200**	**12,968**	**9.3 (8.8-9.8)**	**1.32 (1.11-1.56)**
Subsequent							
BSWN*							
BSCM*							
BSAN/BSAL	47	282	16.7 (12.5-21.5)	534	3,505	15.2 (14.1-16.5)	1.09 (0.79-1.48)
BSM	46	238	19.3 (14.5-24.9)	329	2,342	14.0 (12.7-15.5)	1.38 (0.99-1.88)
BSCtoC	33	124	26.6 (19.1-35.3)	241	1,388	17.4 (15.4-19.5)	1.53 (1.03-2.21)
BSC	16	85	18.8 (11.2-28.8)	236	1,543	15.3 (13.5-17.2)	1.23 (0.69-2.04)
BSS	19	92	20.7 (12.9-30.4)	504	3,598	14.0 (12.9-15.2)	1.47 (0.88-2.33)
BSHC	0	10	0.0 (0.0-30.8)	164	824	19.9 (17.2-22.8)	
Total	**166**	**871**	**19.1 (16.5-21.8)**	**2,058**	**13,582**	**15.2 (14.6-15.8)**	**1.26 (1.07-1.47)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* Data not yet available for BSWN, BSCM.

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, 6 years (July 2000 to June 2006)

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*	2	2	100.0 (15.8-100.0)	2	3	66.7 (9.4-99.2)	1.50 (0.11-20.69)
BSCM*	2	2	100.0(15.8-100.0)	5	5	100.0 (47.8-100.0)	1.00 (0.10-6.11)
BSAN/BSAL	17	22	77.3 (54.6-92.2)	233	279	83.5 (78.6-87.7)	0.93 (0.53-1.51)
BSM	9	13	69.2 (38.6-90.9)	87	110	79.1(70.3-86.3)	0.88 (0.39-1.74)
BSCtoC	4	9	44.4 (13.7-78.8)	12	52	23.1 (12.5-36.8)	1.93 (0.45-6.35)
BSC	4	5	80.0 (28.4-99.5)	69	78	88.5 (79.2-94.6)	0.90 (0.24-2.42)
BSS	3	3	100.0 (29.2-100.0)	93	134	69.4 (60.9-77.1)	1.44 (0.29-4.34)
BSHC	1	1	100.0 (2.5-100.0)	65	74	87.8 (78.2-94.3)	1.14 (0.03-6.57)
Total	**42**	**57**	**73.7 (60.3-84.5)**	**566**	**735**	**77.0 (73.8-80.0)**	**0.96 (0.68-1.31)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

Table 2g.2: Distribution of open biopsies by weight, 6 years (July 2000 to June 2006)

Lead Provider	Benign OB <30g		Benign OB < 50g		Benign OB < 70g		Benign OB >70 g		Unknown Benign OB Weight	
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori
BSWN*	100%	67%	0%	0%	0%	0%	0%	0%	0%	33%
BSCM*	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%
BSAN/BSAL	77%	84%	18%	12%	5%	4%	0%	1%	0%	0%
BSM	69%	79%	15%	9%	0%	3%	8%	6%	8%	3%
BSCtoC	44%	23%	0%	13%	0%	2%	0%	6%	56%	56%
BSC	80%	88%	20%	10%	0%	0%	0%	1%	0%	0%
BSS	100%	69%	0%	19%	0%	7%	0%	4%	0%	0%
BSHC	100%	88%	0%	8%	0%	0%	0%	0%	0%	4%
Total	**74%**	**77%**	**12%**	**12%**	**2%**	**3%**	**2%**	**3%**	**11%**	**5%**

* BSWN and BSCM data is for less than 2 years.

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.

During the last 6 years the target of more than 90% of benign open biopsies weighing less than 30 grams was not met for Māori women or non-Māori women overall. The proportions were similar for Māori and non-Māori women (74% and 77% respectively). Over half of open biopsies in BSCtoC did not have weight assigned.

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.

	Māori			Non-Māori			
Lead provider	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)	Māori/non-Māori ratio (95% CI)
2 years (July 2004 to June 2006)							
BSWN*	4	4	100.0 (39.8-100.0)	41	44	93.2 (81.3-98.6)	1.07 (0.28-2.96)
BSCM*	4	4	100.0 (39.8-100.0)	25	26	96.2 (80.4-99.9)	1.04 (0.26-3.01)
BSAN/BSAL	29	29	100.0 (88.1-100.0)	233	245	95.1 (91.6-97.4)	1.05 (0.69-1.55)
BSM	31	31	100.0 (88.8-100.0)	152	164	92.7 (87.6-96.2)	1.08 (0.71-1.60)
BSCtoC	22	24	91.7 (73.0-99.0)	128	131	97.7 (93.5-99.5)	0.94 (0.57-1.48)
BSC	12	13	92.3 (64.0-99.8)	93	108	86.1 (78.1-92.0)	1.07 (0.53-1.96)
BSS	12	14	85.7 (57.2-98.2)	258	275	93.8 (90.3-96.4)	0.91 (0.47-1.62)
BSHC	1	1	100.0 (2.5-100.0)	55	68	80.9 (69.5-89.4)	1.24 (0.03-7.18)
Total	**115**	**120**	**95.8(90.5-98.6)**	**985**	**1,061**	**92.8(91.1-94.3)**	**1.03 (0.84-1.25)**
6 years (July 2000 to June 2006)							
BSWN							
BSCM							
BSAN/BSAL	101	108	93.5 (87.1-97.4)	881	959	91.9 (90.0-93.5)	1.02 (0.82-1.25)
BSM	85	90	94.4 (87.5-98.2)	426	457	93.2 (90.5-95.3)	1.01 (0.79-1.28)
BSCtoC	51	56	91.1 (80.4-97.0)	364	385	94.5 (91.8-96.6)	0.96 (0.70-1.29)
BSC	27	29	93.1 (77.2-99.2)	295	359	82.2 (77.8-86.0)	1.13 (0.73-1.68)
BSS	30	33	90.9 (75.7-98.1)	766	805	95.2 (93.4-96.5)	0.95 (0.64-1.38)
BSHC	3	3	100.0 (29.2-100.0)	172	223	77.1 (71.1-82.5)	1.30 (0.26-3.85)
Total	**305**	**327**	**93.3(90.0-95.7)**	**2,970**	**3,258**	**91.2(90.1-92.1)**	**1.02 (0.91-1.15)**

Ratios below one are unfavourable to Māori. Rates that did not meet the expected target are shaded.
* BSWN and BSCM data is for less than 2 years

During the last 2 years, 96% of cancers diagnosed among Māori women were definitively diagnosed from a needle biopsy procedure. This met the desired target of more than 90% and was similar to

the non-Māori overall rate of 93%. There were no significant differences between Māori and non-Māori rates within providers. There were no significant changes over time during the 6-year 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 (July 2004 to June 2006)

Lead provider	Initial			Subsequent			Total specificity (95% CI)
	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)	
Māori							
BSWN*	67	73	91.8% (83.0-96.9)	433	445	97.3% (95.3-98.6)	96.5% (94.9-98.1)
BSCM*	132	155	85.2% (78.6-90.4)	400	419	95.5% (93.0-97.2)	92.7% (90.6-94.8)
BSAN/BSAL	698	759	92.0% (89.8-93.8)	2,484	2,546	97.6% (96.9-98.1)	96.3% (95.6-96.9)
BSM	703	780	90.1% (87.8-92.1)	2,335	2,404	97.1% (96.4-97.8)	95.4% (94.7-96.1)
BSCtoC	324	362	89.5% (85.9-92.5)	1,554	1,592	97.6% (96.7-98.3)	96.1% (95.3-97.0)
BSC	271	305	88.9% (84.8-92.2)	831	859	96.7% (95.3-97.8)	94.7% (93.4-96.0)
BSS	296	319	92.8% (89.4-95.4)	1,230	1,258	97.8% (96.8-98.5)	96.8% (95.9-97.6)
BSHC	77	83	92.8% (84.9-97.3)	396	396	100% (99.1-100)	98.7% (97.8-99.7)
Total BSA	**2,568**	**2,836**	**90.6% (89.4-91.6)**	**9,663**	**9,919**	**97.4% (97.1-97.7)**	**95.9% (95.5-96.2)**
Non-Māori							
BSWN*	707	752	94.0% (92.1-95.6)	5,539	5,684	97.4% (97.0-97.8)	97.0% (96.6-97.5)
BSCM*	1,244	1,400	88.9% (87.1-90.5)	4,283	4,453	96.2% (95.6-96.7)	94.4% (93.8-95.0)
BSAN/BSAL	8,138	8,690	93.6% (93.1-94.2)	32,587	33,338	97.7% (97.6-97.9)	96.9% (96.7-97.1)
BSM	4,583	4,988	91.9% (91.1-92.6)	24,163	24,995	96.7% (96.4-96.9)	95.9% (95.6-96.1)
BSCtoC	4,372	4,692	93.2% (92.4-93.9)	19,509	19,904	98.0% (97.8-98.2)	97.1% (96.9-97.3)
BSC	4,233	4,672	90.6% (89.7-91.4)	16,473	16,971	97.1% (96.8-97.3)	95.7% (95.4-95.9)
BSS	7,717	8,376	92.1% (91.5-92.7)	39,900	40,982	97.4% (97.2-97.5)	96.5% (96.3-96.6)
BSHC	2,400	2,589	92.7% (91.6-93.7)	13,891	14,108	98.5% (98.2-98.7)	97.6% (97.3-97.8)
Total BSA	**33,394**	**36,159**	**92.4% (92.1-92.6)**	**156,345**	**160,435**	**97.5% (97.4-97.5)**	**96.5% (96.4-96.6)**

Shaded boxes show target has not been met. *RRS=return to routine screening
* BSWN and BSCM data is for less than 2 years

For initial screens the overall specificity during the last 2 years was 91% for Māori women and 92% for non-Māori women, both approaching the target of 93%. For subsequent screens the specificity was similar for Māori and non-Māori at 97% and 98% respectively. The total specificity rate was above the target for Māori and non-Māori. There were no changes over time.

Table 2l.2: Estimated specificity of BSA by Lead provider, by type of screen (initial and subsequent), 6 years (July 2000 to June 2006)

Lead provider	Initial			Subsequent			Total specificity (95% CI)
	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)	
Māori							
BSWN*							
BSCM*							
BSAN/BSAL	3,643	3,993	91.2% (90.3-92.1)	7,579	7,807	97.1 (96.7-97.4)	92.7% (92.5-93.0)
BSM	2,626	2,883	91.1% (90.0-92.1)	5,889	6,076	96.9 (96.5-97.3)	93.0% (92.7-93.3)
BSCtoC	1,671	1,825	91.6% (90.2-92.8)	4,076	4,161	98.0 (97.5-98.4)	93.8% (93.4-94.1)
BSC	1,009	1,160	87.0% (84.9-88.9)	1,932	1,999	96.6 (95.8-97.4)	90.3% (89.9-90.7)
BSS	1,295	1,435	90.2% (88.6-91.7)	2,713	2,785	97.4 (96.8-98.0)	91.6% (91.3-91.8)
BSHC	274	302	90.7% (86.9-93.8)	1,037	1,047	99.0 (98.3-99.5)	91.9% (91.3-92.4)
Total BSA	**10,717**	**11,826**	**90.6% (90.1-91.1)**	24,059	24,739	97.3 (97.0-97.5)	**92.3% (92.1-92.4)**
Non-Māori							
BSWN*							
BSCM*							
BSAN/BSAL	41,051	44,203	97.1% (96.7-97.4)	95,686	98,572	97.1% (97.0-97.2)	97.1% (97.0-97.2)
BSM	19,572	20,990	96.9% (96.5-97.3)	61,600	63,589	96.9% (96.7-97.0)	96.9% (96.7-97.0)
BSCtoC	18,476	19,663	98.0% (97.5-98.4)	49,275	50,386	97.8% (97.7-97.9)	97.8% (97.7-97.9)
BSC	15,763	17,409	96.6% (95.8-97.4)	40,603	41,889	96.9% (96.8-97.1)	96.9% (96.8-97.1)
BSS	34,612	37,782	97.4% (96.8-98.0)	94,223	97,300	96.8% (96.7-96.9)	96.9% (96.7-97.0)
BSHC	8,269	8,995	99.0% (98.3-99.5)	38,305	38,943	98.4% (98.2-98.5)	98.4% (98.3-98.5)
Total BSA	**139,694**	**151,194**	**97.3% (97.0-97.5)**	**389,514**	**400,816**	**97.2% (97.1-97.2)**	**97.2% (97.1-97.2)**

Shaded boxes show target has not been met.

* Data not yet available for BSWN, BSCM.

**RRS=return to routine screening

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), 6 years (July 2000-2006)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Benign open biopsies	Number of screens	Benign biopsies per 1,000 screens (95% CI)	Benign open biopsies	Number of screens	Benign biopsies per 1,000 screens (95% CI)	
Initial screens							
BSWN*	0	76	0.0 (0.0-47.4)	0	767	0.0 (0.0-4.8)	
BSCM*	2	157	12.7 (1.5-45.3)	4	1,414	2.8 (0.8-7.2)	4.50 (0.41-31.42)
BSAN/BSAL	15	4,074	3.7 (2.1-6.1)	146	44,753	3.3 (2.8-3.8)	1.13 (0.62-1.92)
BSM	9	2,935	3.1 (1.4-5.8)	39	21,130	1.8 (1.3-2.5)	1.66 (0.71-3.49)
BSCtoC	3	1,858	1.6 (0.3-4.7)	32	19,856	1.6 (1.1-2.3)	1.00 (0.20-3.20)
BSC	3	1,176	2.6 (0.5-7.4)	39	17,562	2.2 (1.6-3.0)	1.15 (0.23-3.61)
BSS	2	1,451	1.4 (0.2-5.0)	60	38,103	1.6 (1.2-2.0)	0.88 (0.10-3.30)
BSHC	1	308	3.2 (0.1-18.0)	38	9,077	4.2 (3.0-5.7)	0.78 (0.02-4.59)
Total	**35**	**12,035**	**2.9 (2.0-4.0)**	**358**	**152,662**	**2.3 (2.1-2.6)**	**1.24 (0.85-1.76)**
Subsequent screens							
BSWN*	1	452	2.2 (0.1-12.3)	1	5,733	0.2 (0.0-1.0)	12.68 (0.16-995.62)
BSCM*	0	421	0.0 (0.0-8.7)	1	4,471	0.2 (0.0-1.2)	
BSAN/BSAL	7	7,861	0.9 (0.4-1.8)	131	99,191	1.3 (1.1-1.6)	0.67 (0.27-1.43)
BSM	4	6,127	0.7 (0.2-1.7)	70	63,942	1.1 (0.9-1.4)	0.60 (0.16-1.60)
BSCtoC	6	4,200	1.4 (0.5-3.1)	20	50,663	0.4 (0.2-0.6)	3.62 (1.19-9.34)
BSC	2	2,017	1.0 (0.1-3.6)	38	42,146	0.9 (0.6-1.2)	1.10 (0.13-4.26)
BSS	1	2,805	0.4 (0.0-2.0)	73	97,821	0.7 (0.6-0.9)	0.48 (0.01-2.75)
BSHC	0	1,047	0.0 (0.0-3.5)	36	39,129	0.9 (0.6-1.3)	
Total	**21**	**24,930**	**0.8 (0.5-1.3)**	**370**	**403,096**	**0.9 (0.8-1.0)**	**0.92 (0.56-1.42)**

Ratios above one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

The targets were met for BSA overall for both Māori and non-Māori women in initial and subsequent screens.

SECTION 3: EARLY DETECTION OF DCIS OR INVASIVE BREAST CANCER

3a 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.

Target:

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

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 (July 2004 to June 2006)

	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*	1	13.2 (0.3-71.1)	9	11.7 (5.4-22.2)	1.12 (0.03-8.09)
BSCM*	2	12.7 (1.5-45.3)	11	7.8 (3.9-13.9)	1.64 (0.18-7.50)
BSAN/BSAL	14	18.0 (9.9-30.0)	76	8.6 (6.8-10.8)	2.09 (1.09-3.72)
BSM	15	18.8 (10.5-30.7)	35	7.0 (4.9-9.7)	2.69 (1.37-5.06)
BSCtoC	5	13.4 (4.4-31.1)	36	7.6 (5.3-10.5)	1.77 (0.54-4.53)
BSC	3	9.7 (2.0-28.2)	21	4.5 (2.8-6.8)	2.18 (0.42-7.30)
BSS	2	6.2 (0.8-22.3)	75	8.9 (7.0-11.1)	0.70 (0.08-2.63)
BSHC	1	11.8 (0.3-63.8)	15	5.7 (3.2-9.5)	2.05 (0.05-13.32)
Total	**43**	**14.8 (10.8-19.9)**	**278**	**7.6 (6.7-8.6)**	**1.95 (1.38-2.70)**
Subsequent screens					
BSWN*	3	6.6 (1.4-19.3)	35	6.1 (4.3-8.5)	1.09 (0.21-3.45)
BSCM*	2	4.8 (0.6-17.1)	15	3.4 (1.9-5.5)	1.42 (0.16-6.09)
BSAN/BSAL	15	1.9 (1.1-3.1)	169	1.7 (1.5-2.0)	1.12 (0.61-1.90)
BSM	16	2.6 (1.5-4.2)	129	2.0 (1.7-2.4)	1.29 (0.72-2.18)
BSCtoC	19	4.5 (2.7-7.1)	95	1.9 (1.5-2.3)	2.41 (1.39-3.98)
BSC	10	5.0 (2.4-9.1)	87	2.1 (1.7-2.5)	2.40 (1.11-4.63)
BSS	12	4.3 (2.2-7.5)	200	2.0 (1.8-2.3)	2.09 (1.06-3.74)
BSHC	0	0.0 (0.0-3.5)	53	1.4 (1.0-1.8)	
Total	**77**	**3.1 (2.4-3.9)**	**783**	**1.9 (1.8-2.1)**	**1.59 (1.24-2.01)**

A ratio below 1.0 is unfavourable for Māori. Shaded boxes show target has not been met

* BSWN and BSCM data is for less than 2 years.

For the two-year period:
Initial screens:

- Overall the target was met for Māori and non-Māori women.
- All lead providers, apart from BSS, demonstrated a higher detection rate for Māori compared to non-Māori.
- The overall detection rate for Māori was almost twice that for non-Māori.

Subsequent screens:

- Overall the target of 3.45 cancers detected per 1,000 women screened was nearly met for Māori (3.1 per 1,000) but not for non-Māori (1.9 per 1,000).
- All lead providers demonstrated a higher detection rate for Māori compared to non-Māori (apart from BSHC which detected no cancers for Māori in this time period).
- The overall detection rate for Māori was 1.6 times that for non-Māori.

The higher rates of cancer detection for Māori (both initial and subsequent screens) are likely to be indicative of a higher cancer incidence rate in the background Māori population than that in the non-Māori population.

Table 3a.2: Detection rate of DCIS and invasive breast cancer per 1,000 women screened by type of screen (initial and subsequent), 6 years (July 2000 to June 2006)

	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*					
BSCM*					
BSAN/BSAL	61	15.0 (11.5-19.2)	425	9.5 (8.6-10.4)	1.58 (1.19-2.07)
BSM	44	15.0 (10.9-20.1)	128	6.1 (5.1-7.2)	2.47 (1.72-3.51)
BSCtoC	23	12.4 (7.9-18.5)	144	7.3 (6.1-8.5)	1.71 (1.05-2.66)
BSC	13	11.1 (5.9-18.8)	123	7.0 (5.8-8.4)	1.58 (0.82-2.80)
BSS	14	9.6 (5.3-16.1)	301	7.9 (7.0-8.8)	1.22 (0.66-.08)
BSHC	3	9.7 (2.0-28.2)	59	6.5 (5.0-8.4)	1.50 (0.30-4.60)
Total	**161**	**13.4(11.4-15.6)**	**1,200**	**7.9(7.4-8.3)**	**1.70 (1.43-2.01)**
Subsequent screens					
BSWN*					
BSCM*					
BSAN/BSAL	47	6.0 (4.4-8.0)	534	5.4 (4.9-5.9)	1.11 (0.81-1.50)
BSM	46	7.5 (5.5-10.0)	329	5.1 (4.6-5.7)	1.46 (1.05-1.99)
BSCtoC	33	7.9 (5.4-11.0)	241	4.8 (4.2-5.4)	1.65 (1.11-2.38)
BSC	16	7.9 (4.5-12.9)	236	5.6 (4.9-6.4)	1.42 (0.80-2.35)
BSS	19	6.8 (4.1-10.6)	504	5.2 (4.7-5.6)	1.31 (1.11-1.53)
BSHC	0	0.0 (0-3.5)	164	4.2 (3.6-4.9)	0 (0.00-0.85)
Total	**166**	**6.7(5.7-7.7)**	**2,058**	**5.1(4.9-5.3)**	**1.31 (1.16-1.46)**

Ratios above 1.0 are unfavourable for Māori (as it reflects a higher incidence when screened) Shaded boxes show target has not been met.

* Data not yet available for BSWN, BSCM.

For the six-year period:
Initial Screens:

- Overall the target was met for both Māori and non-Māori.
- All providers exceeded the target for Māori.
- The cancer detection rate for Māori was higher than for non-Māori for each lead provider, with the highest ratio seen in BSM.
- The overall detection rate for Māori was 1.7 times that of non-Māori.

Subsequent Screens:

- Overall, the target was met for both Māori and non-Māori.
- Most providers exceeded the target for Māori (note that data for BSWN and BSCM, the data is for 2 years only). BSHC detected no cancers for Māori in this time period.
- Detection rates were significantly higher than those for non-Māori.
- Overall 30% more cancers were detected per 1,000 screens in the screened Māori population.

Changes over time:

In the six-year period to June 2006, the overall cancer detection rate in initial screens for Māori increased slightly, from 13.4 to 14.8 per 1,000 women screened. However, non-Māori total cancer detection rates decreased slightly in this time period (from 7.9 to 7.6). This resulted in a higher ratio in the two-year time period for initial screens, and therefore indicates an increased disparity over the 6-year period.

Detection rates in subsequent screens for Māori have decreased over time from 6.7 to 3.1 per 1,000 women screened). Non-Māori rates decreased from 5.1 to 1.9 per 1,000 women screened.

Summary

Table 3a.3: Summary of Referral to Assessment, Specificity, False Positives and Detection Rate of DCIS and Invasive Cancer, 2 years (July 2004 to June 2006)

	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*	11.8%	91.8%	11.1%	13.2	7.8%	94.0%	15.0%	11.7
BSCM*	15.9%	85.2%	8.0%	12.7	12.0%	88.9%	6.5%	7.8
BSAN/BSAL	10.3%	92.0%	17.5%	18.0	7.6%	93.6%	11.3%	8.6
BSM	12.1%	90.1%	15.5%	18.8	8.8%	91.9%	7.9%	7.0
BSCtoC	12.9%	89.5%	10.4%	13.4	7.9%	93.2%	9.6%	7.6
BSC	12.0%	88.9%	8.1%	9.7	10.0%	90.6%	4.5%	4.5
BSS	7.8%	92.8%	8.0%	6.2	8.7%	92.1%	10.2%	8.9
BSHC	9.4%	92.8%	12.5%	11.8	8.1%	92.7%	7.1%	5.7
BSA Total	**11.4%**	**90.6%**	**13.1%**	**14.8**	**8.6%**	**92.4%**	**8.8%**	**7.6**
Subsequent screens								
BSWN*	4.2%	97.3%	15.8%	6.6	3.4%	97.4%	18.0%	6.1
BSCM*	5.0%	95.5%	9.5%	4.8	4.2%	96.2%	8.0%	3.4
BSAN/BSAL	3.2%	97.6%	18.3%	1.9	2.9%	97.7%	17.7%	1.7
BSM	3.7%	97.1%	18.0%	2.6	3.9%	96.7%	13.2%	2.0
BSCtoC	3.7%	97.6%	32.2%	4.5	2.5%	98.0%	18.7%	1.9
BSC	4.4%	96.7%	26.3%	5.0	3.5%	97.1%	14.6%	2.1
BSS	3.1%	97.8%	30.0%	4.3	3.1%	97.4%	15.5%	2.0
BSHC	0.0%	100.0%	-	0.0	2.0%	98.5%	18.9%	1.4
BSA Total	**3.5%**	**97.4%**	**22.1%**	**3.1**	**3.1%**	**97.5%**	**15.7%**	**1.9**

* BSWN and BSCM data is for less than 2 years.

Table 3a.4: Summary of Referral to Assessment, Specificity, False Positives and Detection Rate of DCIS and Invasive Cancer, 6 years (July 2000 to June 2006)

	Māori				Non-Māori			
Lead Provider	Referral to assessment as % of women screened	Estimated specificity	Positive Predictive Value	Detection rate per 1000 women screened	Referral to assessment as % of women screened	Estimated Specificity	Positive Predictive Value	Detection rate per 1000 women screened
Initial screens								
BSWN*	11.8%	91.8%	11.1%	13.2	7.8%	94.0%	15.0%	11.7
BSCM*	15.9%	85.2%	8.0%	12.7	12.0%	88.9%	6.5%	7.8
BSAN/BSAL	10.6%	91.2%	14.2%	15.0	8.3%	92.9%	11.5%	9.5
BSM	10.5%	91.1%	14.2%	15.0	7.4%	93.2%	8.2%	6.1
BSCtoC	10.1%	91.6%	12.3%	12.4	7.0%	94.0%	10.4%	7.3
BSC	14.2%	87.0%	7.8%	11.1	10.2%	90.5%	6.8%	7.0
BSS	10.8%	90.2%	9.0%	9.6	9.2%	91.6%	8.6%	7.9
BSHC	11.0%	90.7%	8.8%	9.7	8.9%	91.9%	7.3%	6.5
BSA Total	11.0%	90.6%	12.2%	**13.4**	**8.5%**	92.4%	**9.3%**	7.9
Subsequent screens								
BSWN*	4.2%	97.3%	15.8%	6.6	3.4%	97.4%	18.0%	6.1
BSCM*	5.0%	95.5%	9.5%	4.8	4.2%	96.2%	8.0%	3.4
BSAN/BSAL	3.6%	97.1%	16.7%	6.0	3.5%	97.1%	15.2%	5.4
BSM	3.9%	96.9%	19.3%	7.5	3.7%	96.9%	14.0%	5.1
BSCtoC	3.0%	98.0%	26.6%	7.9	2.7%	97.8%	17.4%	4.8
BSC	4.2%	96.6%	18.8%	7.9	3.7%	96.9%	15.3%	5.6
BSS	3.3%	97.4%	20.7%	6.8	3.7%	96.8%	14.0%	5.2
BSHC	1.0%	99.0%	0.0%	0.0	2.1%	98.4%	19.9%	4.2
BSA Total	3.5%	97.3%	19.1%	6.7	**3.4%**	**97.2%**	**15.2%**	5.1

* BSWN and BSCM data is for less than 2 years

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%.

- For both the 2- and 6-year periods, the overall number of Māori women referred for assessment following initial screening exceeded 10%.
- However, the targets for Māori women may need to be reassessed.

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 specificity for Māori was not met by any provider. The specificity for non-Māori was generally higher but also did not meet the target. Several individual lead providers did meet the target for non-Māori having initial screens.

- For subsequent screens all providers met the target, for both Māori and non-Māori. The overall specificity is very similar for both populations for both time periods. There is no apparent disparity.

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 initial and subsequent screens, for both the time periods. Most individual providers met the target for Māori in initial screens (except BSCM, BSC and BSS).
- The target was not met overall for non-Māori in initial screens for the 2-year period, but was met for the 6-year period and for subsequent screens.
- The overall PPV for Māori was greater than that for non-Māori for initial and subsequent screens, and for both time periods. It was also greater in most individual providers.

Detection rate per 1,000 women screened -
Detection rates are detailed above in tables 3a.1 and 3a.2. The target for initial screens is ≥ 6.9, and for subsequent screens is ≥ 3.45.

- For initial screens, the target was met for Māori and non-Māori for the 2-year period, and for subsequent screens in the 6-year period.
- The target was not met overall for Māori or non-Māori subsequent screens in the 2-year period.
- Most lead providers had a higher cancer detection rate for Māori in both initial and subsequent screens, and in both the 2-year and 6-year period.
- Overall, detection rates were greater than those for non-Māori.

Overall comments
In general, more Māori women were referred for further assessment than non-Māori. This likely reflects the higher cancer detection rate for Māori. As mentioned in section 2d, this could also be because Māori women are less likely than non-Māori to have been screened before joining the programme, therefore there is a higher chance of cancer detection in the Māori population screened through BSA.

The higher rate of false positives and slightly lower estimated specificity for the Māori population could indicate that the higher rate of assessment referrals might be unnecessary. However, this is coupled with both significantly higher positive predictive values and higher cancer detection rates for Māori women in both initial and subsequent screens and across most providers. The higher referral rates for Māori compared to non-Māori are therefore warranted as more cancers are detected in the Māori population screened.

Over time, initial cancer detection rates increased slightly for Māori (from 13.4 to 14.8) and decreased slightly for non-Māori (from 7.9 to 7.6). In subsequent screens, rates decreased over time for both groups.

Table 3a.4.1: Māori/non-Māori summary ratios, 2 years (July 2004-June 2006) and 6 years (July 2000-June 2006)

	Initial screens				Subsequent screens			
Lead Provider	Referral to assessment as % of women screened	Estimated specificity	Positive Predictive Value	Detection rate per 1000 women screened	Referral to assessment as % of women screened	Estimated Specificity	Positive Predictive Value	Detection rate per 1000 women screened
Last 2 years								
BSWN*	1.51	0.98	0.74	1.13	1.24	1.04	1.05	1.08
BSCM*	1.32	0.96	1.23	1.63	1.19	1.07	1.46	1.41
BSAN/BSAL	1.34	0.98	1.55	2.09	1.12	1.05	1.59	1.16
BSM	1.37	0.98	1.96	2.69	0.95	1.04	2.20	1.29
BSCtoC	1.63	0.96	1.08	1.76	1.44	1.04	3.10	2.51
BSC	1.21	0.98	1.80	2.16	1.25	1.07	3.87	2.25
BSS	0.89	1.01	0.78	0.70	1.01	1.07	3.49	1.92
BSHC	1.16	1.00	1.76	2.07	0.00	1.09	0.00	0.00
BSA Total	**1.32**	**0.98**	**1.49**	**1.95**	**1.12**	**1.05**	**2.38**	**1.57**
Last 6 years								
BSWN*								
BSCM*								
BSAN/BSAL	1.28	0.93	0.80	1.58	1.02	1.00	1.10	1.11
BSM	1.43	0.94	1.08	2.46	1.06	1.00	1.38	1.47
BSCtoC	1.45	0.93	0.66	1.70	1.08	1.00	1.53	1.65
BSC	1.39	0.90	0.53	1.59	1.15	1.00	1.23	1.41
BSS	1.17	0.93	0.58	1.22	0.89	1.01	1.48	1.31
BSHC	1.24	0.92	0.47	1.49	0.45	1.01	0.00	0.00
BSA Total	**1.29**	**0.93**	**0.78**	**1.70**	**1.04**	**1.00**	**1.26**	**1.31**

* BSWN and BSCM data is for less than 2 years

Ratios

Referral to assessment –
A ratio **above 1.0** indicates more Māori are being referred than non-Māori. This is **unfavourable** to Māori as it indicates higher rates of suspected cancers.

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 below 1.0. This is **unfavourable** for Māori as the higher rate of false positives indicates that more Māori women are likely to receive unnecessary further assessment.

Positive predictive value –
A ratio **below 1.0** indicates that of all the patients tested positive for breast cancer, the number of Māori who actually have the disease is less than the number of non-Māori (higher false positives). This is **unfavourable** for Māori

Detection rate per 1,000 women screened -
A ratio **above 1.0** is **unfavourable** to Māori as this demonstrates a higher number of cancers. While it is beneficial that these are being detected through the screening programme, it is indicative of a higher background cancer incidence.

3a5 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 1999 to December 2005)

	Māori								Non-Māori							
Lead Provider	BSWN	BSCM	BSAN/ BSAL	BSM	BSCtoC	BSC	BSS	BSHC	BSWN	BSCM	BSAN/ BSAL	BSM	BSCtoC	BSC	BSS	BSHC
Women referred for Treatment	0	0	139	100	63	32	34	4	0	7	1186	512	442	398	900	278
% Staging Complete			93%	98%	98%	91%	100%	100%		57%	97%	99%	98%	96%	99%	96%
% Surgical Complete			94%	99%	95%	91%	100%	100%		57%	96%	99%	97%	88%	99%	96%
% Endocrine Complete			97%	88%	98%	91%	100%	100%		57%	98%	87%	99%	96%	99%	98%
% Radiotherapy Complete			96%	88%	98%	91%	100%	100%		57%	98%	87%	99%	96%	99%	98%
% Chemotherapy Complete			96%	88%	98%	91%	100%	100%		57%	98%	87%	99%	96%	99%	98%

Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

Of all the providers, BSCM did not meet the target of 90% treatment data completeness in all areas for non-Māori. BSM did not meet the target for both populations for endocrine, radiotherapy and chemotherapy data. BSC did not meet the target for non-Māori surgical data.

This data does not show any clear disparity between Māori and non-Māori in data completeness.

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

Description:

Rate and proportion of primary invasive breast cancer of diameter ≤10mm.

Target:

Initial (prevalent) round: ≥25%, which gives a rate of ≥ 17.3 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 1999-December 2005)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Invasive cancers ≤10mm	Total invasive cancers	% of invasive cancers ≤10mm	Invasive cancers ≤10mm	Total invasive cancers	% of invasive cancers ≤10mm	
Initial screens							
BSWN*							
BSCM*							
BSAN/BSAL	18	66	27.3 (17.0-39.6)	174	454	38.3 (33.8-43.0)	0.71 (0.41-1.16)
BSM	13	46	28.3 (16.0-43.5)	39	131	29.8 (22.1-38.4)	0.95 (0.46-1.82)
BSCtoC	5	31	16.1 (5.5-33.7)	68	188	36.2 (29.3-43.5)	0.45 (0.14-1.09)
BSC	3	16	18.8 (4.0-45.6)	62	154	40.3 (32.4-48.5)	0.47 (0.09-1.43)
BSS	4	14	28.6 (8.4-58.1)	122	332	36.7 (31.5-42.2)	0.78 (0.21-2.04)
BSHC	0	2	0.0 (0.0-84.2)	15	55	27.3 (16.1-41.0)	
Total BSA	**43**	**175**	**24.6 (18.4-31.6)**	**480**	**1,315**	**36.5(33.9-39.2)**	**0.67(0.48-0.92)**
Subsequent screens							
BSWN*							
BSCM*							
BSAN/BSAL	7	26	26.9 (11.6-47.8)	148	358	41.3 (36.2-46.6)	0.65 (0.26-1.38)
BSM	10	33	30.3 (15.6-48.7)	92	252	36.5 (30.6-42.8)	0.83 (0.39-1.60)
BSCtoC	7	25	28.0 (12.1-49.4)	65	181	35.9 (28.9-43.4)	0.78 (0.30-1.70)
BSC	6	10	60.0 (26.2-87.8)	77	158	48.7 (40.7-56.8)	1.23 (0.44-2.80)
BSS	2	10	20.0 (2.5-55.6)	148	358	41.3 (36.2-46.6)	0.48 (0.06-1.78)
BSHC	1	1	100.0 (2.5-100.0)	68	160	42.5 (34.7-50.6)	2.35 (0.06-13.56)
Total BSA	**33**	**105**	**31.0(22.7-41.2)**	**599**	**1,469**	**40.8(38.2-43.3)**	**0.77 (0.53-1.09)**

Ratios below one are unfavourable to Māori.

* Data not yet available for BSWN, BSCM.

Initial screens – Overall, the proportion of invasive cancers less than or equal to 10mm for Māori was on target at 25%. For non-Māori data, all the lead providers demonstrated proportions that were comfortably higher than the target, producing an overall proportion of 36.5%. The ratios are therefore considerably lower, reflecting the fact that fewer of the cancers for Māori were less than 10mm in size, and likely to be more advanced cancers.

Subsequent screens – The target was met overall for Māori. For non-Māori, all providers exceeded the target.

The numbers for Māori are relatively small, which affects some of the ratios observed. BSHC data shows 100% of invasive cancers were small, however this is a sample size of just 1. The ratio when compared to non-Māori is 2.35, which (misleadingly) appears favourable. The high Māori proportion for BSC produces a ratio above one (1.23) when compared to non-Māori data. All other providers demonstrate a ratio below 1.0 (ranging from 0.48 to 0.83), which is unfavourable for Māori, indicating that overall, subsequent screens detect fewer small cancers in Māori women.

Usually the percentage of small cancers detected in subsequent screens is greater than that of initial screens. Most larger cancers are detected in initial screens, and a higher level of 'new' cancers is likely to be detected in subsequent screens, which will be smaller. Overall, a greater proportion of small cancers were detected in subsequent screens for both Māori and non-Māori, although for Māori this difference was slightly larger (25% initial, 31% subsequent compared to non-Māori 37% initial, 41% subsequent).

Table 3b.2: Rate of invasive cancers less than or equal to 10mm per 10,000 screens, 7 years (January 1999-December 2005)

	Māori			Non-Māori			
Lead provider	Invasive cancers ≤10mm	Total screens	Invasive cancers ≤ 10mm per 10,000 screens	Invasive cancers ≤10mm	Total screens	Invasive cancers ≤ 10mm per 10,000 screens	Māori/non-Māori ratio (95% CI)
Initial screens							
BSWN*							
BSCM*	0	28	0.0 (0.0-1234.4)	0	298	0.0 (0.0-123.0)	
BSAN/BSAL	18	6,937	25.9 (15.4-41.0)	174	76,976	22.6 (19.4-26.2)	1.15 (0.66-1.87)
BSM	13	3,831	33.9 (18.1-58.0)	39	27,929	14.0 (9.9-19.1)	2.43 (1.19-4.65)
BSCtoC	5	3,157	15.8 (5.1-36.9)	68	33,897	20.1 (15.6-25.4)	0.79 (0.25-1.93)
BSC	3	1,651	18.2 (3.7-53.0)	62	28,329	21.9 (16.8-28.0)	0.83 (0.17-2.54)
BSS	4	1,994	20.1 (5.5-51.3)	122	61,395	19.9 (16.5-23.7)	1.01 (0.27-2.65)
BSHC	0	391	0.0 (0.0-93.9)	15	11,195	13.4 (7.5-22.1)	
Total	**43**	**17,989**	**23.9 (17.3-32.2)**	**480**	**240,019**	**20.0 (18.3-21.9)**	**1.20 (0.85-1.63)**
Subsequent screens							
BSWN*	0	0					
BSCM*	0	77	0.0 (0.0-467.8)	1	1,026	9.7 (0.2-54.2)	
BSAN/BSAL	7	7,724	9.1 (3.6-18.7)	148	95,412	15.5 (13.1-18.2)	0.58 (0.23-1.23)
BSM	10	6,148	16.3 (7.8-29.9)	92	65,129	14.1 (11.4-17.3)	1.15 (0.53-2.21)
BSCtoC	7	3,720	18.8 (7.6-38.7)	65	44,584	14.6 (11.3-18.6)	1.29 (0.50-2.81)
BSC	6	1,718	34.9 (12.8-75.9)	77	36,263	21.2 (16.8-26.5)	1.64 (0.59-3.75)
BSS	2	2,479	8.1 (1.0-29.1)	148	86,866	17.0 (14.4-20.0)	0.47 (0.06-1.74)
BSHC	1	1,140	8.8 (0.2-48.8)	68	43,886	15.5 (12.0-19.6)	0.57 (0.01-3.26)
Total	**33**	**23,006**	**14.3 (9.9-20.1)**	**599**	**373,166**	**16.1 (14.8-17.4)**	**0.89 (0.61-1.27)**

Ratios below one are unfavourable to Māori.

* BSWN and BSCM data is for less than 2 years.

Table 3b.2 displays the number of small cancers per 10,000 screens.

Initial screens – the target is ≥17.3 per 10,000.

- Overall, the target was met for both Māori and non-Māori. The ratios are varied, and all except that for BSM are not significant.

Subsequent screens – the target is ≥ 10.45 per 10,000.

- Overall the target was met for both Māori and non-Māori. Ratios vary across providers but none are 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 >34.5 per 10,000 screens.
Subsequent (incident) round: > 50%, which gives a rate of > 17.3 per 10,000 screens.

Table 3c.1: Proportion of invasive cancers less than 15mm, 7 years (January 1999-Dec 2005)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Invasive cancers <15mm	Total invasive cancers	% of invasive cancers <15mm	Invasive cancers <15mm	Total invasive cancers	% of invasive cancers <15mm	
Initial screens							
BSWN*							
BSCM*					1	0.0 (0.0-97.5)	
BSAN/BSAL	25	66	37.9 (26.2-50.7)	242	454	53.3 (48.6-58.0)	0.71 (0.45-1.07)
BSM	19	46	41.3 (27.0-56.8)	66	131	50.4 (41.5-59.2)	0.82 (0.46-1.38)
BSCtoC	8	31	25.8 (11.9-44.6)	91	188	48.4 (41.1-55.8)	0.53 (0.22-1.10)
BSC	6	16	37.5 (15.2-64.6)	84	154	54.5 (46.3-62.6)	0.69 (0.25-1.56)
BSS	7	14	50.0 (23.0-77.0)	186	332	56.0 (50.5-61.4)	0.89 (0.35-1.88)
BSHC	0	2	0.0 (0.0-84.2)	24	55	43.6 (30.3-57.7)	
Total	**65**	**175**	**37.1 (30.0-44.8)**	**693**	**1315**	**52.7 (50.0-55.4)**	**0.70 (0.54-0.91)**
Subsequent screens							
BSWN*							
BSCM*							
BSAN/BSAL	9	26	34.6 (17.2-55.7)	210	358	58.7 (53.4-63.8)	0.59 (0.27-1.14)
BSM	16	33	48.5 (30.8-66.5)	145	252	57.5 (51.2-63.7)	0.84 (0.47-1.42)
BSCtoC	16	25	64.0 (42.5-82.0)	99	181	54.7 (47.1-62.1)	1.17 (0.64-2.00)
BSC	7	10	70.0 (34.8-93.3)	103	158	65.2 (57.2-72.6)	1.07 (0.42-2.29)
BSS	3	10	30.0 (6.7-65.2)	206	358	57.5 (52.2-62.7)	0.52 (0.11-1.55)
BSHC	1	1	100.0 (2.5-100.0)	104	160	65.0 (57.1-72.4)	1.54 (0.04-8.76)
Total	**52**	**105**	**49.5 (39.6-59.5)**	**868**	**1469**	**59.1 (56.5-61.6)**	**0.84 (0.62-1.11)**

Ratios below one are unfavourable to Māori.

* Data not yet available for BSWN, BSCM, BSAL

Initial screens – the target is >50%

- Overall the target was not met for Māori.
- The target was met for non-Māori overall.
- The overall ratio of 0.70 is significant, indicating that Māori have a lower proportion of small cancers detected.

Subsequent screens – the target is >50%

- Overall the target was met for Māori and for non-Māori. None of the ratios are significant.

Table 3c.2: Rate of invasive cancers, less than 15mm, per 10,000 screens, 7 years (January 1999-December 2005)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Invasive cancers <15mm	Total screens	Invasive cancers <15mm per 10,000 screens(95% CI)	Invasive cancers <15mm	Total screens	Invasive cancers <15mm per 10,000 screens(95% CI)	
Initial screens							
BSWN							
BSCM*	0	28	0.0 (0.0-1234.4)	0	298	0.0 (0.0-123.0)	
BSAN/BSAL	25	6,937	36.0 (23.3-53.2)	242	769,76	31.4 (27.6-35.7)	1.15 (0.73-1.73)
BSM	19	3,831	49.6 (29.9-77.3)	66	27,929	23.6 (18.3-30.1)	2.10 (1.19-3.54)
BSCtoC	8	3,157	25.3 (10.9-49.9)	91	33,897	26.8 (21.6-33.0)	0.94 (0.40-1.94)
BSC	6	1,651	36.3 (13.3-78.9)	84	28,329	29.7 (23.7-36.7)	1.23 (0.44-2.78)
BSS	7	1,994	35.1 (14.1-72.2)	186	61,395	30.3 (26.1-35.0)	1.16 (0.46-2.44)
BSHC	0	391	0.0 (0.0-93.9)	24	11,195	21.4 (13.7-31.9)	
Total	**65**	**17,989**	**36.1 (27.9-46.0)**	**693**	**240,019**	**28.9 (26.8-31.1)**	**1.25 (0.96-1.62)**
Subsequent screens							
BSWN*							
BSCM*	0	77	0.0 (0.0-467.8)	1	1,026	9.7 (0.2-54.2)	
BSAN/BSAL	9	7,724	11.7 (5.3-22.1)	210	95,412	22.0 (19.1-25.2)	0.53 (0.24-1.02)
BSM	16	6,148	26.0 (14.9-42.2)	145	65,129	22.3 (18.8-26.2)	1.17 (0.65-1.96)
BSCtoC	16	3,720	43.0 (24.6-69.8)	99	44,584	22.2 (18.1-27.0)	1.94 (1.07-3.30)
BSC	7	1,718	40.7 (16.4-83.8)	103	36,263	28.4 (23.2-34.4)	1.43 (0.56-3.06)
BSS	3	2,479	12.1 (2.5-35.3)	206	86,866	23.7 (20.6-27.2)	0.51 (0.10-1.51)
BSHC	1	1,140	8.8 (0.2-48.8)	104	43,886	23.7 (19.4-28.7)	0.37 (0.01-2.11)
Total	**52**	**23,006**	**22.6 (16.9-29.6)**	**868**	**373,166**	**23.3 (21.7-24.9)**	**0.97 (0.72-1.29)**

Ratios below one are unfavourable to Māori. Shaded boxes show the target has not been met.

* BSWN and BSCM data is for less than 2 years.

Table 3c.2 shows the number of invasive cancers less than or equal to 15mm detected per 10,000 screens.

Initial screens – target >34.5 per 10,000 screens.

- Overall, the target was met for Māori.
- The target was not met for non-Māori
- Most ratios are not significant, except for BSM.

Subsequent screens – target > 17.3 per 10,000 screens.

- Overall the target was met for both Māori and non-Māori
- Most ratios (except that for BSCtoC) are not significant.

Comment

These rates are dependent on the underlying cancer detection rate, so while it appears favourable that screening targets are met for Māori women compared to non-Māori, this is likely to be greatly influenced by a higher underlying cancer incidence in the Māori population screened.

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 1999-December 2005), 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							
BSCM*	0	0		1	1	0.0 (0.0-97.5)	
BSAN/BSAL	16	66	75.8 (63.6-85.5)	107	454	76.4 (72.3-80.3)	0.99 (0.72-1.34)
BSM	16	46	65.2 (49.8-78.6)	37	131	71.8 (63.2-79.3)	0.91 (0.58-1.38)
BSCtoC	8	31	74.2 (55.4-88.1)	51	188	72.9 (65.9-79.1)	1.02 (0.62-1.59)
BSC	4	16	75.0 (47.6-92.7)	28	154	81.8 (74.8-87.6)	0.92 (0.46-1.66)
BSS	8	14	42.9 (17.7-71.1)	74	332	77.7 (72.8-82.1)	0.55 (0.20-1.22)
BSHC	2	2	0.0 (0.0-84.2)	16	55	70.9 (57.1-82.4)	0.0
Total	**54**	**175**	**69.1** (61.7-75.9)	**314**	**1315**	**76.1** (73.7-78.4)	**0.91** (0.75-1.10)
Subsequent screens							
BSWN							
BSCM*	0	0		0	2	100.0 (15.8-100.0)	
BSAN/BSAL	7	26	73.1 (52.2-88.4)	93	358	74.0 (69.2-78.5)	0.99 (0.59-1.57)
BSM	13	33	60.6 (42.1-77.1)	51	252	79.8 (74.3-84.5)	0.76 (0.45-1.21)
BSCtoC	6	25	76.0 (54.9-90.6)	48	181	73.5 (66.4-79.8)	1.03 (0.60-1.68)
BSC	1	10	90.0 (55.5-99.7)	32	158	79.7 (72.6-85.7)	1.13 (0.50-2.21)
BSS	6	10	40.0 (12.2-73.8)	79	358	77.9 (73.3-82.1)	0.51 (0.14-1.33)
BSHC	0	1	100.0 (2.5-100.0)	34	160	78.8 (71.6-84.8)	1.27 (0.03-7.20)
Total	**33**	**105**	**68.6 (58.8-77.3)**	**337**	**1469**	**77.1 (74.8-79.2)**	**0.89 (0.69-1.13)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years

Initial screens:

- Overall, the proportion of invasive cancers with no nodal involvement was 69% for Māori (close to the target of >70%) and 76% for non-Māori. None of the ratios are significant.

Subsequent screens:

- Overall, the target was approached for Māori women and was over target for non-Māori women. None of the ratios are significant.

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 1999 to December 2005)

	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*							
BSCM*	0	0		1	4	25.0 (0.6-80.6)	
BSAN/BSAL	37	129	28.7 (21.1-37.3)	338	1150	29.4 (26.8-32.1)	0.98 (0.68-1.37)
BSM	19	98	19.4 (12.1-28.6)	122	505	24.2 (20.5-28.1)	0.80 (0.47-1.31)
BSCtoC	6	62	9.7 (3.6-19.9)	63	432	14.6 (11.4-18.3)	0.66 (0.23-1.53)
BSC	3	29	10.3 (2.2-27.4)	68	380	17.9 (14.2-22.1)	0.58 (0.12-1.76)
BSS	10	34	29.4 (15.1-47.5)	203	893	22.7 (20.0-25.6)	1.29 (0.61-2.43)
BSHC	1	4	25.0 (0.6-80.6)	50	265	18.9 (14.3-24.1)	1.33 (0.03-7.73)
Total	**76**	**356**	**21.3(17.2-26.0)**	**845**	**3629**	**23.3(21.9-24.7)**	**0.92 (0.72-1.16)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met (rates under 10% or over 25%).

* BSWN and BSCM data is for less than 2 years.

- The target was met for Māori women overall and non-Māori women overall.
- Two providers exceeded the target for Māori (BSAL and BSS).
- Only one provider exceeded the target for non-Māori (BSAL).
- The proportion of screen detected cancers among Māori women that were DCIS was similar to that of non-Māori.
- None of the ratios are significant.

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 1999-December 2005)

	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*	0	0		0	0		
BSCM*	0	0		2	2	100.0 (15.8-100.0)	
BSAN/BSAL	63	68	92.6 (83.7-97.6)	461	539	85.5 (82.3-88.4)	1.08 (0.82-1.41)
BSM	58	60	96.7 (88.5-99.6)	278	288	96.5 (93.7-98.3)	1.00 (0.74-1.33)
BSCtoC	43	43	100.0 (91.8-100.0)	259	269	96.3 (93.3-98.2)	1.04 (0.73-1.44)
BSC	18	18	100.0 (81.5-100.0)	178	182	97.8 (94.5-99.4)	1.02 (0.59-1.66)
BSS	16	19	84.2 (60.4-96.6)	456	478	95.4 (93.1-97.1)	0.88 (0.50-1.45)
BSHC	2	2	100.0 (15.8-100.0)	146	153	95.4 (90.8-98.1)	1.05 (0.13-3.85)
Total	**200**	**210**	**95.2 (91.4-97.7)**	**1780**	**1911**	**93.1 (91.9-94.2)**	**1.02 (0.88-1.18)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years

It is important to note that this table includes data from early years when there were problems identified with the coding of tumour size. Therefore the results should be read with caution.

- Overall, the target was met for Māori women.
- For non-Māori women BSAL fell short of the desired target, and the overall BSA proportion was also just below 95%.
- The ratios are not significant.

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 1999-December 2005)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (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)	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)	
BSWN*	0	0		0	0		
BSCM*	0	0		3	3	100.0(29.2-100.0)	
BSAN/BSAL	76	86	88.4(79.7-94.3)	688	802	85.8(83.2-88.1)	1.03 (0.80-1.31)
BSM	65	77	84.4(74.4-91.7)	326	382	85.3(81.4-88.7)	0.99 (0.75-1.29)
BSCtoC	39	53	73.6(59.7-84.7)	283	361	78.4(73.8-82.5)	0.94 (0.65-1.32)
BSC	24	26	92.3(74.9-99.1)	245	291	84.2(79.5-88.2)	1.10 (0.69-1.67)
BSS	18	24	75.0(53.3-90.2)	590	688	85.8(82.9-88.3)	0.87 (0.51-1.39)
BSHC	3	3	100.0(29.2-100.0)	187	211	88.6(83.5-92.6)	1.13 (0.23-3.35)
Total	**225**	**269**	**83.6(78.7-87.9)**	**2,322**	**2,738**	**84.8(83.4-86.1)**	**0.99 (0.86-1.13)**

Ratios below one are unfavourable to Māori.

* BSWN and BSCM data is for less than 2 years.

- The ratios are not significant.

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 1999-December 2005)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (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)	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)	
BSWN*	0	0		0	0		
BSCM*	0	0		1	1	100.0 (2.5-100.0)	
BSAN/BSAL	32	34	94.1 (80.3-99.3)	242	319	75.9 (70.8-80.5)	1.24 (0.83-1.80)
BSM	15	19	78.9 (54.4-93.9)	91	119	76.5 (67.8-83.8)	1.03 (0.56-1.79)
BSCtoC	4	6	66.7 (22.3-95.7)	36	62	58.1 (44.8-70.5)	1.15 (0.30-3.20)
BSC	2	3	66.7 (9.4-99.2)	47	51	92.2 (81.1-97.8)	0.72 (0.09-2.76)
BSS	8	10	80.0 (44.4-97.5)	147	201	73.1 (66.4-79.1)	1.09 (0.46-2.21)
BSHC	1	1	100.0 (2.5-100.0)	32	50	64.0 (49.2-77.1)	1.56 (0.04-9.35)
Total	**62**	**73**	**84.9 (74.6-92.2)**	**596**	**803**	**74.2 (71.0-77.2)**	**1.14 (0.87-1.49)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

- The target of 95% was not met for either Māori or non-Māori women.
- Note the two providers that have a rate of 100% are based on a very small sample size of 1.
- BSCtoC had a particularly low rate for non-Māori, which contributes to the lower overall rate and the higher ratio.
- The ratios are not significant.

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 1999-December 2005)

	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*							
BSCM*							
BSAN/BSAL	19	23	82.6 (61.2-95.0)	175	236	74.2 (68.1-79.6)	1.11 (0.65-1.79)
BSM	10	12	83.3 (51.6-97.9)	60	75	80.0 (69.2-88.4)	1.04 (0.48-2.05)
BSCtoC	2	3	66.7 (9.4-99.2)	26	38	68.4 (51.3-82.5)	0.97 (0.11-3.89)
BSC	1	1	100.0 (2.5-100.0)	28	32	87.5 (71.0-96.5)	1.14 (0.03-6.91)
BSS	5	6	83.3 (35.9-99.6)	102	124	82.3 (74.4-88.5)	1.01 (0.32-2.44)
BSHC	1	1	100.0 (2.5-100.0)	16	23	69.6 (47.1-86.8)	1.44 (0.03-9.25)
Total	**38**	**46**	**82.6 (68.6-92.2)**	**407**	**528**	**77.1 (73.3-80.6)**	**1.07 (0.75-1.50)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

- All providers met the target of more than 50% for both Māori and non-Māori.
- The ratios are not significant.

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 without DCIS, having BCS, 7 years (January 1999-December 2005)

	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*							
BSCM*				1	1	100.0 (2.5-100.0)	
BSAN/BSAL	13	17	76.5 (50.1-93.2)	124	166	74.7 (67.4-81.1)	1.02 (0.53-1.82)
BSM	18	23	78.3 (56.3-92.5)	85	106	80.2 (71.3-87.3)	0.98 (0.55-1.64)
BSCtoC	8	15	53.3 (26.6-78.7)	50	96	52.1 (41.6-62.4)	1.02 (0.42-2.18)
BSC	8	11	72.7 (39.0-94.0)	53	77	68.8 (57.3-78.9)	1.06 (0.43-2.24)
BSS	1	7	14.3 (0.4-57.9)	105	162	64.8 (56.9-72.1)	0.22 (0.01-1.26)
BSHC	0	0		43	62	69.4 (56.3-80.4)	
Total	**48**	**73**	**65.8(53.7-76.5)**	**461**	**670**	**68.8(65.1-72.3)**	**0.96 (0.69-1.29)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

- Overall, the target of more than 50% was met for both Māori and non-Māori.
- BSS had a very low rate for Māori (14%).
- The ratios are not significant.

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, 7years (January 1999-December 2005)

	Māori			Non-Māori			
Lead provider	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)	Māori/non-Māori ratio (95% CI)
BSWN*	0	0		0	0		
BSCM*	0	0		1	1	100.0 (2.5-100.0)	
BSAN/BSAL	42	45	93.3 (81.7-98.6)	465	505	92.1 (89.4-94.3)	1.01 (0.72-1.39)
BSM	34	48	70.8 (55.9-83.0)	216	270	80.0 (74.7-84.6)	0.89 (0.60-1.28)
BSCtoC	27	28	96.4 (81.7-99.9)	175	179	97.8 (94.4-99.4)	0.99 (0.63-1.48)
BSC	16	16	100.0 (79.4-100.0)	154	169	91.1 (85.8-94.9)	1.10 (0.61-1.84)
BSS	9	9	100.0 (66.4-100.0)	370	377	98.1 (96.2-99.3)	1.02 (0.46-1.96)
BSHC	2	2	100.0 (15.8-100.0)	119	131	90.8 (84.5-95.2)	1.10 (0.13-4.06)
Total	**130**	**148**	**87.8(81.5-92.6)**	**1500**	**1632**	**91.9(90.5-93.2)**	**0.96 (0.79-1.14)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

- Overall, the target of more than 95% was not met for either Māori or non-Māori women.
- BSAL and BSM did not meet the target for Māori.
- BSAL, BSM, BSC and BSHC did not meet the target for non-Māori.
- The ratios are not significant.

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 1999-December 2005)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
BSWN*	0	0		0	0		
BSCM*	0	0		1	1	100.0 (2.5-100.0)	
BSAN/BSAL	11	27	40.7 (22.4-61.2)	100	225	44.4 (37.8-51.2)	0.92 (0.44-1.71)
BSM	8	13	61.5 (31.6-86.1)	31	75	41.3 (30.1-53.3)	1.49 (0.59-3.31)
BSCtoC	2	3	66.7 (9.4-99.2)	6	33	18.2 (7.0-35.5)	3.67 (0.36-20.51)
BSC	0	1	0.0 (0.0-97.5)	13	36	36.1 (20.8-53.8)	
BSS	3	8	37.5 (8.5-75.5)	59	126	46.8 (37.9-55.9)	0.80 (0.16-2.46)
BSHC	1	1	100.0 (2.5-100.0)	19	24	79.2 (57.8-92.9)	1.26 (0.03-7.95)
Total	**25**	**53**	**47.2(33.3-61.4)**	**229**	**520**	**44.0(39.7-48.4)**	**1.07 (0.68-1.62)**

Ratios below one are unfavourable to Māori.

* BSWN and BSCM data is for less than 2 years.

- Overall a slightly higher proportion of Māori received radiotherapy following BCS.
- The ratios are not significant.

4i Proportion of invasive cancers having chemotherapy

Description:

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

Target:

No target.

Table 4i: The proportion of women with invasive cancers who have chemotherapy, by disease character group, 7 years (January 1999-December 2005)

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*							
BSCM*							
BSAN/BSAL	2	3	66.7 (9.4-99.2)	29	31	93.5 (78.6-99.2)	0.71 (0.08-2.82)
BSM	1	1	100.0 (2.5-00.0)	7	11	63.6 (30.8-89.1)	1.57 (0.03-12.23)
BSCtoC	0	0		5	7	71.4 (29.0-96.3)	
BSC	2	2	100.0 (15.8-100.0)	11	12	91.7 (61.5-99.8)	1.09 (0.12-5.00)
BSS	0	0		17	22	77.3 (54.6-92.2)	
BSHC	0	0		8	9	88.9 (51.8-99.7)	
Total	**5**	**6**	**83.3 (35.9-99.6)**	**77**	**92**	**83.7 (74.5-90.6)**	**1.00 (0.31-2.43)**
Group 2: Node negative, high risk, and ER/PR negative							
BSWN*	0	0		0	0		
BSCM*	0	0		0	1	0.0 (0.0-97.5)	
BSAN/BSAL	5	7	71.4 (29.0-96.3)	24	49	49.0 (34.4-63.7)	1.46 (0.43-3.90)
BSM	0	0		9	19	47.4 (24.4-71.1)	
BSCtoC	0	1	0.0 (0.0-97.5)	6	18	33.3 (13.3-59.0)	
BSC	0	1	0.0 (0.0-97.5)	10	38	26.3 (13.4-43.1)	
BSS	0	0		17	60	28.3 (17.5-41.4)	
BSHC	0	0		8	18	44.4 (21.5-69.2)	
Total	**5**	**9**	**55.6 (21.2-86.3)**	**74**	**203**	**36.5 (29.8-43.5)**	**1.52 (0.48-3.72)**
Group 3: Node positive, either ER or PR positive							
BSWN*	0	0		0	0		
BSCM*	0	0		1	1	100.0 (2.5-100.0)	
BSAN/BSAL	7	12	58.3 (27.7-84.8)	39	103	37.9 (28.5-48.0)	1.54 (0.58-3.48)
BSM	7	9	77.8 (40.0-97.2)	24	39	61.5 (44.6-76.6)	1.26 (0.46-3.02)
BSCtoC	3	7	42.9 (9.9-81.6)	23	47	48.9 (34.1-63.9)	0.88 (0.17-2.90)
BSC	3	3	100.0 (29.2-100.0)	27	48	56.3 (41.2-70.5)	1.78 (0.35-5.78)
BSS	6	14	42.9 (17.7-71.1)	58	122	47.5 (38.4-56.8)	0.90 (0.32-2.08)
BSHC	0	2	0.0 (0.0-84.2)	25	41	61.0 (44.5-75.8)	0.00
Total	**26**	**47**	**55.3** (40.1-69.8)	**197**	**401**	**49.1** (44.1-54.1)	**1.13** (0.72-1.70)

Group 4: Node negative, high risk, either ER or PR positive							
BSWN*	0	0		0	0		
BSCM*	0	0		0	1	0.0(0.0-97.5)	
BSAN/BSAL	1	25	4.0(0.1-20.4)	6	207	2.9(1.1-6.2)	1.38(0.03-11.37)
BSM	1	14	7.1(0.2-33.9)	10	68	14.7(7.3-25.4)	0.49(0.01-3.41)
BSCtoC	0	8	0.0(0.0-36.9)	3	63	4.81.0-13.3)	
BSC	0	7	0.0(0.0-41.0)	2	88	2.3(0.3-8.0)	
BSS	0	5	0.0(0.0-52.2)	10	232	4.3(2.1-7.8)	
BSHC	0	0		3	60	5.0(1.0-13.9)	
Total	**2**	**59**	**3.4(0.4-11.7)**	**34**	**719**	**4.7(3.3-6.5)**	**0.72(0.08-2.80)**

* BSWN and BSCM data is for less than 2 years.

- The ratios are not significant.

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 1999 to December 2005)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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	
Group 1: Node positive, ER/PR positive							
BSWN*	0	0		0	0		
BSCM*	0	0		1	1	100.0 (2.5-100.0)	
BSAN/BSAL	11	12	91.7 (61.5-99.8)	94	103	91.3 (84.1-95.9)	1.00 (0.48-1.88)
BSM	8	9	88.9 (51.8-99.7)	29	39	74.4 (57.9-87.0)	1.20 (0.47-2.68)
BSCtoC	7	7	100.0 (59.0-100.0)	45	47	95.7 (85.5-99.5)	1.04 (0.40-2.33)
BSC	3	3	100.0 (29.2-100.0)	44	48	91.7 (80.0-97.7)	1.09 (0.22-3.40)
BSS	13	14	92.9 (66.1-99.8)	114	122	93.4 (87.5-97.1)	0.99 (0.51-1.77)
BSHC	1	2	50.0 (1.3-98.7)	36	41	87.8 (73.8-95.9)	0.57 (0.01-3.38)
Total	**43**	**47**	**91.5(79.6-97.6)**	**363**	**401**	**90.5(87.2-93.2)**	**1.01 (0.72-1.39)**
Group 2: Node negative, high risk, and ER/PR positive							
BSWN*	0	0		0	0		
BSCM*	0	0		1	1	100.0 (2.5-100.0)	
BSAN/BSAL	18	25	72.0 (50.6-87.9)	144	207	69.6 (62.8-75.8)	1.04 (0.60-1.69)
BSM	7	14	50.0 (23.0-77.0)	41	68	60.3 (47.7-72.0)	0.83 (0.31-1.87)
BSCtoC	8	8	100.0 (63.1-100.0)	50	63	79.4 (67.3-88.5)	1.26 (0.52-2.68)
BSC	7	7	100.0 (59.0-100.0)	74	88	84.1 (74.8-91.0)	1.19 (0.46-2.57)
BSS	4	5	80.0 (28.4-99.5)	164	232	70.7 (64.4-76.5)	1.13 (0.30-2.95)
BSHC	0	0		35	60	58.3 (44.9-70.9)	
Total	**44**	**59**	**74.6(61.6-85.0)**	**509**	**719**	**70.8(67.3-74.1)**	**1.05 (0.76-1.43)**
Group 3: Node negative, low risk, either ER or PR positive							
BSWN*	0	0		0	0		
BSCM*	0	0		1	1	100.0 (2.5-100.0)	
BSAN/BSAL	19	43	44.2 (29.1-60.1)	175	347	50.4 (45.0-55.8)	0.88 (0.52-1.41)
BSM	13	24	54.2 (32.8-74.4)	81	122	66.4 (57.3-74.7)	0.82 (0.42-1.47)
BSCtoC	14	17	82.4 (56.6-96.2)	77	106	72.6 (63.1-80.9)	1.13 (0.59-2.02)
BSC	18	20	90.0 (68.3-98.8)	140	184	76.1 (69.3-82.1)	1.18 (0.68-1.94)
BSS	6	8	75.0 (34.9-96.8)	258	426	60.6 (55.7-65.2)	1.24 (0.45-2.73)
BSHC	0	1	0.0 (0.0-97.5)	62	130	47.7 (38.9-56.6)	0.00
Total	**70**	**113**	**61.9(52.3-70.9)**	**794**	**1316**	**60.3 (57.6-63.0)**	**1.03 (0.79-1.31)**

* BSWN and BSCM data is for less than 2 years.

- The ratios are not significant.

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 (July 2004 to June 2006) and 6 years (July 2000 to June 2006)

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)	
2 years (July 2004 to June 2006)							
BSWN*	455	528	86.2 (82.9-89.0)	5,613	6,500	86.4 (85.5-87.2)	1.00 (0.91-1.10)
BSCM*	542	578	93.8 (91.5-95.6)	5,550	5,885	94.3 (93.7-94.9)	0.99 (0.91-1.09)
BSAN/BSAL	2,444	3,367	72.6 (71.0-74.1)	30,563	42,378	72.1 (71.7-72.5)	1.01 (0.97-1.05)
BSM	3,050	3,224	94.6 (93.8-95.4)	28,738	30,165	95.3 (95.0-95.5)	0.99 (0.96-1.03)
BSCtoC	1,911	1,985	96.3 (95.3-97.1)	24,283	24,765	98.1 (97.9-98.2)	0.98 (0.94-1.03)
BSC	772	1,177	65.6 (62.8-68.3)	14,027	21,771	64.4 (63.8-65.1)	1.02 (0.95-1.09)
BSS	1,581	1,591	99.4 (98.8-99.7)	49,125	49,645	99.0 (98.9-99.0)	1.00 (0.95-1.06)
BSHC	440	481	91.5 (88.6-93.8)	15,259	16,783	90.9 (90.5-91.3)	1.01 (0.91-1.11)
Total	**11,195**	**12,931**	**86.6 (86.0-87.2)**	**173,158**	**197,892**	**87.5 (87.4-87.6)**	**0.99 (0.97-1.01)**
6 years (July 2000 to June 2006)							
BSWN							
BSCM							
BSAN/BSAL	10,776	12,042	89.5 (88.9-90.0)	129,211	144,051	89.7 (89.5-89.9)	1.00 (0.98-1.02)
BSM	8,727	9,062	96.3 (95.9-96.7)	82,688	85,072	97.2 (97.1-97.3)	0.99 (0.97-1.01)
BSCtoC	5,889	6,058	97.2 (96.8-97.6)	69,676	70,519	98.8 (98.7-98.9)	0.98 (0.96-1.01)
BSC	2,705	3,193	84.7 (83.4-85.9)	51,056	59,708	85.5 (85.2-85.8)	0.99 (0.95-1.03)
BSS	4,209	4,256	98.9 (98.5-99.2)	134,674	135,924	99.1 (99.0-99.1)	1.00 (0.97-1.03)
BSHC	1,220	1,355	90.0 (88.3-91.6)	43,512	48,206	90.3 (90.0-90.5)	1.00 (0.94-1.06)
Total	**34,523**	**37,072**	**93.1 (92.9-93.4)**	**521,980**	**555,865**	**93.9 (93.8-94.0)**	**0.99 (0.98-1.00)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met (<90%).

* BSWN and BSCM data is for less than 2 years

Overall the target of 90% of women notified of screening results within 10 working days was not met for Māori or for non-Māori during the 2-year period. There was a decrease over time during the 6 years. The main decreases over time occurred in the BSC and BSAL regions. BSWN only

commenced during the most recent 6 months, but was not yet meeting the target for Māori or non-Māori. There were no significant differences 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 (July 2004 to June 2006) and 6 years (July 2000 to June 2006)

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 (July 2004 to June 2006)							
BSWN*	13	28	46.4 (27.5-66.1)	158	254	62.2 (55.9-68.2)	0.75 (0.39-1.31)
BSCM*	32	46	69.6 (54.2-82.3)	301	358	84.1 (79.9-87.7)	0.83 (0.56-1.19)
BSAN/ BSAL	119	162	73.5 (66.0-80.1)	1,190	1,630	73.0 (70.8-75.1)	1.01 (0.83-1.22)
BSM	165	186	88.7 (83.3-92.9)	1,168	1,419	82.3 (80.2-84.3)	1.08 (0.91-1.27)
BSCtoC	79	107	73.8 (64.4-81.9)	647	884	73.2 (70.1-76.1)	1.01 (0.79-1.28)
BSC	42	75	56.0 (44.1-67.5)	605	1,065	56.8 (53.8-59.8)	0.99 (0.70-1.35)
BSS	64	65	98.5 (91.7-100.0)	1,945	2,028	95.9 (95.0-96.7)	1.03 (0.79-1.32)
BSHC	6	8	75.0 (34.9-96.8)	274	492	55.7 (51.2-60.1)	1.35 (0.49-2.97)
Total	**520**	**677**	**76.8 (73.4-79.9)**	**6,288**	**8,130**	**77.3 (76.4-78.2)**	**0.99 (0.91-1.09)**
6 years (July 2000 to June 2006)							
BSWN							
BSCM							
BSAN/ BSAL	585	713	82.0 (79.0-84.8)	6,212	7,207	86.2 (85.4-87.0)	0.95 (0.87-1.04)
BSM	481	547	87.9 (84.9-90.5)	3,454	3,900	88.6 (87.5-89.5)	0.99 (0.90-1.09)
BSCtoC	240	311	77.2 (72.1-81.7)	2,215	2,768	80.0 (78.5-81.5)	0.96 (0.84-1.10)
BSC	191	252	75.8 (70.0-80.9)	2,690	3,342	80.5 (79.1-81.8)	0.94 (0.81-1.09)
BSS	239	248	96.4 (93.2-98.3)	6,741	7,089	95.1 (94.6-95.6)	1.01 (0.89-1.15)
BSHC	29	44	65.9 (50.1-79.5)	1,105	1,632	67.7 (65.4-70.0)	0.97 (0.65-1.41)
Total	**1,810**	**2,189**	**82.7 (81.0-84.2)**	**22,876**	**26,550**	**86.2 (85.7-86.6)**	**0.96 (0.91-1.01)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.
* BSWN and BSCM data is for less than 2 years

During the 2-year period, 77% of Māori and non-Māori women were offered an assessment appointment within 15 working days, below the target of 90%. This was a decrease from the

previous years. The proportions were were particularly low in BSWN and BSC, for both Māori and non-Māori. There were no significant differences between the results for Māori and non-Māori.

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 (July 2004 to June 2006) and 6 years (July 2000 to June 2006)

	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 (July 2004 to June 2006)							
BSWN*	13	14	92.9 (66.1-99.8)	80	80	100.0 (95.5-100.0)	0.93 (0.47-1.68)
BSCM*	17	17	100.0 (80.5-100.0)	86	94	91.5 (83.9-96.3)	1.09 (0.61-1.85)
BSAN/BSAL	72	78	92.3 (84.0-97.1)	592	677	87.4 (84.7-89.8)	1.06 (0.81-1.35)
BSM	78	88	88.6 (80.1-94.4)	408	465	87.7 (84.4-90.6)	1.01 (0.78-1.29)
BSCtoC	58	63	92.1 (82.4-97.4)	282	301	93.7 (90.3-96.2)	0.98 (0.73-1.31)
BSC	27	29	93.1 (77.2-99.2)	298	322	92.5 (89.1-95.2)	1.01 (0.65-1.49)
BSS	28	30	93.3 (77.9-99.2)	568	645	88.1 (85.3-90.5)	1.06 (0.70-1.55)
BSHC	4	4	100.0 (39.8-100.0)	131	140	93.6 (88.1-97.0)	1.07 (0.29-2.80)
Total	**297**	**323**	**92.0 (88.4-94.7)**	**2,445**	**2,724**	**89.8 (88.6-90.9)**	**1.02 (0.91-1.16)**
6 years (July 2000 to June 2006)							
BSWN							
BSCM							
BSAN/BSAL	309	369	83.7 (79.6-87.4)	2,313	2,941	78.6 (77.1-80.1)	1.06 (0.94-1.20)
BSM	198	250	79.2 (73.6-84.1)	1,054	1,280	82.3 (80.1-84.4)	0.96 (0.82-1.12)
BSCtoC	135	152	88.8 (82.7-93.3)	817	902	90.6 (88.5-92.4)	0.98 (0.81-1.18)
BSC	91	100	91.0 (83.6-95.8)	946	1,009	93.8 (92.1-95.2)	0.97 (0.77-1.20)
BSS	106	117	90.6 (83.8-95.2)	2,162	2,590	83.5 (82.0-84.9)	1.09 (0.88-1.32)
BSHC	14	15	93.3 (68.1-99.8)	397	436	91.1 (88.0-93.6)	1.03 (0.56-1.74)
Total	**883**	**1,034**	**85.4 (83.1-87.5)**	**7,855**	**9,332**	**84.2 (83.4-84.9)**	**1.01 (0.95-1.09)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

During the 2-year period, 92% of Māori women and 90% of non-Māori women received a diagnostic needle biopsy within 7 days of their first level assessment. This was within target and an improvement on previous years. All providers were on target for this indicator for Māori women.

Table 5c.2: Women receiving open biopsy procedure within 15 working days of notification of the need for the operation, 2 years (July 2004 to June 2006) and 6 years (July 2000 to June 2006)

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 (July 2004 to June 2006)							
BSWN*	0	2	0.0 (0.0-84.2)	2	4	50.0 (6.8-93.2)	
BSCM*	2	2	100.0 (15.8-100.0)	5	5	100.0 (47.8-100.0)	1.00 (0.10-6.11)
BSAN/BSAL	6	6	100.0 (54.1-100.0)	59	78	75.6 (64.6-84.7)	1.32 (0.47-3.05)
BSM	0	3	0.0 (0.0-70.8)	20	49	40.8 (27.0-55.8)	
BSCtoC	0	4	0.0 (0.0-60.2)	6	18	33.3 (13.3-59.0)	
BSC	1	1	100.0 (2.5-100.0)	24	35	68.6 (50.7-83.1)	1.46 (0.04-8.94)
BSS	2	2	100.0 (15.8-100.0)	46	47	97.9 (88.7-99.9)	1.02 (0.12-3.91)
BSHC	0	1	0.0 (0.0-97.5)	29	41	70.7 (54.5-83.9)	
Total BSA	**11**	**21**	**52.4 (29.8-74.3)**	**191**	**277**	**69.0 (63.1-74.4)**	**0.76 (0.37-1.39)**
6 years (July 2000 to June 2006)							
BSWN							
BSCM							
BSAN/BSAL	24	30	80.0 (61.4-92.3)	272	356	76.4 (71.6-80.7)	1.05 (0.66-1.59)
BSM	9	18	50.0 (26.0-74.0)	69	140	49.3 (40.7-57.9)	1.01 (0.45-2.04)
BSCtoC	2	14	14.3 (1.8-42.8)	35	73	47.9 (36.1-60.0)	0.30 (0.03-1.16)
BSC	5	7	71.4 (29.0-96.3)	107	144	74.3 (66.4-81.2)	0.96 (0.31-2.31)
BSS	6	6	100.0 (54.1-100.0)	151	172	87.8 (81.9-92.3)	1.14 (0.41-2.54)
BSHC	0	1	0.0 (0.0-97.5)	93	125	74.4 (65.8-81.8)	
Total BSA	**48**	**80**	**60.0 (48.4-70.8)**	**734**	**1,019**	**72.0 (69.2-74.8)**	**0.83 (0.61-1.12)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* BSWN and BSCM data is for less than 2 years.

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 being notified of the need for one. The number of Māori women requiring the procedure were very small but the result was similar to the 6-year rate which included larger numbers.

BSS consistently achieved the target for Māori women over the 6 years, but only 14% of Māori women in BSCtoC received timely open biopsies and 50% within BSM. In these two regions the proportion of non-Māori women receiving open biopsies in 15 working days was under 50%.

A smaller proportion of Māori women than non-Māori women received open biopsies in a timely manner, although the numbers were small and the differences not statistically significant.

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 seven days of final diagnostic biopsy.

Table 5d: Percentage of women receiving final diagnostic biopsy results within 5 working days, 2 years (July 2004 to June 2006) and 6 years (July 2000 to June 2006)

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 (July 2004 to June 2006)							
BSWN*	7	15	46.7 (21.3-73.4)	53	84	63.1 (51.9-73.4)	0.74 (0.28-1.63)
BSCM*	13	17	76.5 (50.1-93.2)	74	95	77.9 (68.2-85.8)	0.98 (0.50-1.78)
BSAN/ BSAL	67	78	85.9 (76.2-92.7)	536	684	78.4 (75.1-81.4)	1.10 (0.84-1.42)
BSM	70	87	80.5 (70.6-88.2)	364	472	77.1 (73.1-80.8)	1.04 (0.80-1.35)
BSCtoC	57	64	89.1 (78.8-95.5)	273	301	90.7 (86.8-93.7)	0.98 (0.72-1.31)
BSC	27	30	90.0 (73.5-97.9)	266	322	82.6 (78.0-86.6)	1.09 (0.70-1.62)
BSS	31	32	96.9 (83.8-99.9)	679	695	97.7 (96.3-98.7)	0.99 (0.67-1.42)
BSHC	5	5	100.0 (47.8-100.0)	135	156	86.5 (80.2-91.5)	1.16 (0.37-2.76)
Total BSA	**277**	**328**	**84.5 (80.1-88.2)**	**2,380**	**2,809**	**84.7 (83.3-86.0)**	**1.00 (0.88-1.13)**
6 years (July 2000 to June 2006)							
BSWN							
BSCM							
BSAN/ BSAL	283	375	75.5 (70.8-79.7)	2,546	3,040	83.8 (82.4-85.0)	0.90 (0.79-1.02)
BSM	187	252	74.2 (68.3-79.5)	998	1,300	76.8 (74.4-79.0)	0.97 (0.82-1.13)
BSCtoC	136	154	88.3 (82.2-92.9)	834	920	90.7 (88.6-92.5)	0.97 (0.81-1.17)
BSC	92	101	91.1 (83.8-95.8)	887	1,016	87.3 (85.1-89.3)	1.04 (0.83-1.29)
BSS	115	119	96.6 (91.6-99.1)	2,574	2,651	97.1 (96.4-97.7)	1.00 (0.82-1.20)
BSHC	15	16	93.8 (69.8-99.8)	442	481	91.9 (89.1-94.2)	1.02 (0.57-1.70)
Total BSA	**848**	**1,049**	**80.8 (78.3-83.2)**	**8,408**	**9,587**	**87.7 (87.0-88.4)**	**0.92 (0.86-0.99)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met

* BSWN and BSCM data is for less than 2 years.

During the 2-year period 85% of both Māori and non-Māori women received their final biopsy results within 5 working days. This was below the target of 90%, although several providers did achieve the target for Māori women. BSM had the greatest number of biopsies among Māori women and was below the target at 81%.

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.

Table 5e: Proportion of women receiving timely surgical treatment, 7 years (January 1999-December 2005)

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*							
BSCM*							
BSAN/BSAL*							
BSM				1	4	25.0 (0.6-80.6)	
BSCtoC	58	120	48.3 (39.1-57.6)	711	1,124	63.3 (60.4-66.1)	0.76 (0.57-1.00)
BSC	61	97	62.9 (52.5-72.5)	364	501	72.7 (68.5-76.5)	0.87 (0.65-1.14)
BSS	39	59	66.1 (52.6-77.9)	334	424	78.8 (74.6-82.6)	0.84 (0.59-1.17)
BSHC	18	29	62.1 (42.3-79.3)	295	342	86.3 (82.1-89.7)	0.72 (0.42-1.16)
Total	**176**	**305**	**57.7(51.9-63.3)**	**1,705**	**2,395**	**71.2(69.3-73.0)**	**0.81 (0.69-0.95)**

Ratios below one are unfavourable to Māori. Shaded boxes show target has not been met.

* Data not available for BSWN, BSCM, BSAL.

During the last 6 years, only 58% of Māori women received their first surgical treatment within 20 working days of receiving their final diagnostic results, well below the target of 90% and significantly lower than the proportion for non-Māori (71%). All providers were below the target for Māori women and non-Māori women. BSCtoC had the lowest proportion of Māori women receiving timely surgical treatment at 48% compared to 63% of non-Māori women in this region.

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 2005 projected population (as at December 2005) has been used. This is the same population that is used for all BSA quality and contract monitoring for the period July 2005 to June 2006.

Table A1: Population projections 2005 BSA lead provider districts by age group

Lead Provider	45-49 yrs	50-54 yrs	55-59 yrs	60-64 yrs	65-69 yrs	Total
Māori						
BSWN	2,840	2,050	1,610	1,180	1,050	8,730
BSCM	2,040	1,550	1,180	810	540	6,120
BSAL	1,040	850	620	420	370	3,300
BSM	4,630	3,540	2,580	1,960	1,570	14,280
BSCtoC	3,460	2,665	2,000	1,490	1,195	10,810
BSC	1,680	1,230	910	600	420	4,840
BSS	1,350	965	720	530	365	3,930
BSHC	555	455	300	230	155	1,695
BSA Total	**17,595**	**13,305**	**9,920**	**7,220**	**5,665**	**53,705**
Non-Māori						
BSWN	21,440	18,480	17,400	13,610	10,755	81,685
BSCM	12,700	11,135	10,115	7,815	6,055	47,820
BSAL	13,800	11,760	10,050	7,190	5,780	48,580
BSM	18,285	16,485	15,725	13,045	10,850	74,390
BSCtoC	16,060	14,425	13,565	10,975	9,500	64,525
BSC	14,740	12,690	11,995	9,075	7,400	55,900
BSS	24,280	21,695	20,715	15,765	13,155	95,610
BSHC	10,050	8,705	8,220	6,515	5,575	39,065
BSA Total	**131,355**	**115,375**	**107,785**	**83,990**	**69,070**	**507,575**

Table A2: Population projections 2005 by ethnicity, women aged 50–64 years

Lead Provider	Māori	Non-Māori	Total
BSWN	4,840	49,490	54,330
BSCM	3,540	29,065	32,605
BSAL	1,890	29,000	30,890
BSM	8,080	45,255	53,335
BSCtoC	6,155	38,965	45,120
BSC	2,740	33,760	36,500
BSS	2,215	58,175	60,390
BSHC	985	23,440	24,425
BSA Total	30,445	307,150	337,595

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.

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.

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

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.

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.