

BreastScreen Aotearoa

Independent Māori Monitoring Report 6

Third in new time series

Screening and Assessment July 2012 to June
2014

Ages 45 to 49 and 50 to 69 years

A report prepared by
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CONTENTS

Overview	6
Individual Lead Provider Profiles	10
Introduction	10
Total BreastScreen Aotearoa	11
BreastScreen Waitemata Northland	12
BreastScreen Counties Manukau	14
BreastScreen Auckland Limited	16
BreastScreen Midland	18
BreastScreen Coast to Coast	20
BreastScreen Central	22
BreastScreen South Limited	24
BreastScreen Health Care	26
Introduction	28
Background	29
BreastScreen Aotearoa	29
BSA monitoring process	33
Technical notes for interpreting this report	35
Section 1: Coverage	38
1a.1 Overall coverage of eligible women	38
1a.2 Proportion of screens that are initial and subsequent screens	41
1a.3 Percentage of women screened by type of screening unit	44
1a.4 Age-specific coverage, women aged 45–69 years	46
1b3 Routine re-screening	48
Section 2: Provision of high quality screening and assessment	52
2a Screened women who have no more than four images taken	52
2b Technical recall rate	54
2c Technical reject rate	58
2d Assessment rate	60
2e False positive rate	64
2f Positive predictive value of screening mammogram	68
2g Benign biopsy weight	72
2h Pre-operative diagnosis rate	74
2l Specificity	76
2m Benign biopsy rate	78
Section 3: Early detection of DCIS or invasive breast cancer	80
3a.1 Detection of DCIS or invasive breast cancer	80
3a.2 Detection of invasive breast cancer	84
3a.3 Summary of referral to assessment, specificity, false positives and detection rate of DCIS and invasive cancer	86
3c Proportion of invasive cancers that are less than or equal to 15mm in size	88
3d Nodal involvement	92
3e Ductal carcinoma	94

Section 5: Provision of an appropriate and acceptable service	95
5a Time taken for provision of screening results.....	95
5b Time taken from screening visit to first offer of an assessment	97
5c Time taken from assessment to final diagnostic biopsy.....	99
5d Time taken from final diagnostic biopsy to reporting assessment results.....	102
Appendix A: Population denominators	104
Appendix B: Glossary of terms	105

List of Tables

Table 1: BSA Lead Providers' abbreviations and period in programme.....	31
Table 1a.1: Overall coverage of eligible women, 2 years (July 2012 to June 2014).....	38
Table 1a.2a: Proportion of screens that are initial or subsequent screens, 2 years (July 2012 to June 2014), 45–49 years.....	41
Table 1a.2b: Proportion of screens that are initial or subsequent screens, 2 years (July 2012 to June 2014), 50–69 years.....	42
Table 1a.3a: Percentage of women screened by type of screening unit, 2 years (July 2012 to June 2014), 45–49 years.....	44
Table 1a.3b: Percentage of women screened by type of screening unit, 2 years (July 2012 to June 2014), 50–69 years.....	45
Table 1a.4: Coverage by age group, 2 years (July 2012 to June 2014).....	46
Table 1b.3: Percentage of women aged 45–49 years eligible for re-screen who are re-screened within 27 months, 2 years (previous screen during July 2010 to June 2012)	48
Table 1b.3: Percentage of women aged 50–69 years eligible for re-screen who are re-screened within 27 months, 2 years (previous screen during July 2010 to June 2012)	49
Table 2a.1: Percentage of women aged 45–49 years having 4 images or fewer by type of screening unit, 2 years (July 2012 to June 2014).....	52
Table 2a.2: Percentage of women aged 50–69 years having 4 images or fewer by type of screening unit, 2 years (July 2012 to June 2014).....	53
Table 2b.1: Percentage of women aged 45–49 years having technical recall as a percentage of women screened, 2 years (July 2012 to June 2014).....	54
Table 2b.2: Percentage of women aged 50–69 years having technical recall as a percentage of women screened, 2 years (July 2012 to June 2014).....	55
Table 2c.1: Rejected images as a percentage of total images taken among women aged 45–49 years, 2 years (July 2012 to June 2014).....	58
Table 2c.2: Rejected images as a percentage of total images taken among women aged 50–69 years, 2 years (July 2012 to June 2014).....	59
Table 2d.1: Referral to assessment as a percentage of women aged 45–49 years, 2 years (July 2012 to June 2014).....	60
Table 2d.2: Referral to assessment as a percentage of women aged 50–69 years, 2 years (July 2012 to June 2014).....	61
Table 2e.1: Number with false positive results as a percentage of women screened, aged 45–49 years, 2 years (July 2012 to June 2014).....	64
Table 2e.2: Number with false positive results as a percentage of women screened, aged 50–69 years, 2 years (July 2012 to June 2014).....	65

Table 2f.1: Cancers as a percentage of referrals to assessment, women aged 45–49 years, 2 years (July 2012 to June 2014)	68
Table 2f.2: Cancers as a percentage of referrals to assessment, women aged 50–69 years, 2 years (July 2012 to June 2014)	69
Table 2g.1: Benign open biopsies weighing <30g as a percent of all benign open biopsies, 5 years (July 2009 to June 2014)	72
Table 2g.2: Distribution of open biopsies by weight, 5 years (July 2009 to June 2014)	73
Table 2h: Percentage of women with a preoperative diagnosis of cancer, 2 years (July 2012 to June 2014)	74
Table 2l.1: Estimated specificity of BSA by Lead provider, by type of screen (initial and subsequent), 2 years (July 2012 to June 2014), women aged 45–49 years.....	76
Table 2l.2: Estimated specificity of BSA by Lead provider, by type of screen (initial and subsequent), 2 years (July 2012 to June 2014), women aged 50–69 years.....	77
Table 2m.1: Benign open biopsies as a proportion of women screened, aged 45–49 years, 2 years (July 2012 to June 2014)	78
Table 2m.2: Benign open biopsies as a proportion of women screened, aged 50–69 years, 2 years (July 2012 to June 2014)	79
Table 3a.1a: Detection rate of DCIS and invasive breast cancer per 1,000 screens, aged 45–49 years, 2 years (July 2012 to June 2014)	80
Table 3a.1b: Detection rate of DCIS and invasive breast cancer per 1,000 screens, aged 50–69 years, 2 years (July 2012 to June 2014)	81
Table 3a.2a: Detection rate of invasive breast cancer per 1,000 screens, aged 45–49 years, 2 years (July 2012 to June 2014)	84
Table 3a.2b: Detection rate of invasive breast cancer per 1,000 screens, aged 50–69 years, 2 years (July 2012 to June 2014)	85
Table 3a.3a: Summary of Referral to Assessment, Specificity, False Positives and Detection Rate of DCIS and Invasive Cancer, women aged 50–69 years, 2 years (July 2012 to June 2014)	86
Table 3a.3b: Māori/non-Māori summary ratios, women aged 50–69 years, 2 years (July 2012 to June 2014)	87
Table 3c.1a: Proportion of invasive cancers less than or equal to 15mm, aged 45–49 years, 5 years (July 2009 to June 2014)	88
Table 3c.1b: Proportion of invasive cancers less than or equal to 15mm, aged 50–69 years, 5 years (July 2009 to June 2014)	89
Table 3c.2b: Detection rate of invasive breast cancer less than or equal to 15mm per 10,000 screens, aged 45–49 years, 5 years (July 2009 to June 2014)	90
Table 3c.2b: Detection rate of invasive breast cancer less than or equal to 15mm per 10,000 screens, aged 50–69 years, 5 years (July 2009 to June 2014)	91
Table 3d.1: Invasive cancers without nodal involvement, women aged 45–49 years, 5 years (July 2009 to June 2014)	92
Table 3d.2: Invasive cancers without nodal involvement, women aged 50–69 years, 5 years (July 2009 to June 2014)	93
Table 3e: Women with DCIS as a percentage of all screen detected cancers, 5 years (July 2009 to June 2014)	94
Table 5a: Percentage of women notified of screening results within 10 working days, 2 years (July 2012 to June 2014)	95
Table 5b: Percentage of women offered first assessment appointment within 15 working days, 2 years (July 2012 to June 2014)	97
Table 5c.1: Women receiving needle biopsy within 5 working days of assessment, 2 years (July 2012 to June 2014).....	99

Table 5c.2: Women receiving open biopsy procedure within 20 working days of notification of the need for the operation, 2 years (July 2012 to June 2014)	101
Table 5d: Percentage of women receiving final diagnostic biopsy results within 5 working days, 2 years (July 2012 to June 2014).....	102
Table A1: Mid-year population estimates 2013 by ethnicity, Lead Provider, 45–49 and 50–69 years.....	104
Table A2: Mid-year population estimates 2013 by ethnicity, Lead Provider, and 5-year age group.....	104

List of Figures

Figure i: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, Total BSA	11
Figure ii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSWN	13
Figure iii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSCM.....	15
Figure iv: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSAL.....	17
Figure v: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSM.....	19
Figure vi: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSCtoC	21
Figure vii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSC.....	23
Figure viii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSSL.....	25
Figure ix: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSHC	27
Figure x: Age distribution of Māori and non-Māori eligible populations, mid-year 2013	30
Figure xi: Distribution of Māori and non-Māori women aged 45–69 years by Lead Provider region, mid-year 2013.....	31
Figure xii: Map of BSA Lead Provider Regions.....	32
Figure xiii: The Breast Screening Pathway.....	33
Figure xiv: Template for calculation of test validity	37
Figure 1a.1a: Trends in biennial coverage for Māori and non-Māori women aged 45–49 years July 2006 to June 2014	39
Figure 1a.1b: Trends in biennial coverage for Māori and non-Māori women aged 50–69 years July 2006 to June 2014	40
Figure 1a.2: Trends in the percentage of screens of Māori women aged 50–69 years that were initial.....	43
Figure 1b.3a: Trends in percentage of eligible Māori and non-Māori women aged 50–69 years routinely rescreened within 27 months of an initial screen	50
Figure 1b.3b: Trends in percentage of eligible Māori and non-Māori women aged 50–69 years routinely rescreened within 27 months of a subsequent screen.....	51
Figure 2b.1a: Trends in technical recall rates for Māori women aged 50–69 years screened in fixed sites.....	56
Figure 2b.1b: Trends in technical recall rates for Māori women aged 50–69 years screened in mobile units.....	57
Figure 2d.1a: Trends in referral to assessment for Māori women aged 50–69 years having an initial screen	62

Figure 2d.1b: Trends in referral to assessment for Māori women aged 50–69 years having a subsequent screen.....	63
Figure 2e.1: Trends in false positive rates for Māori women aged 50–69 years having an initial screen.....	66
Figure 2e.2 Trends in false positive rates for Māori women aged 50–69 years having a subsequent screen.....	67
Figure 2f.1: Trends in the proportion of referrals to assessment that were diagnosed as breast cancer (DCIS and invasive) among Māori women aged 50–69 years having an initial screen.....	70
Figure 2f.2: Trends in the proportion of referrals to assessment that were diagnosed as breast cancer (DCIS and invasive) among Māori women aged 50–69 years having a subsequent screen.....	71
Figure 2h: Trends in the percentage of Māori women aged 50–69 years with a preoperative diagnosis of cancer (DCIS and invasive).....	75
Figure 3a.1a: Trends in the detection rate of DCIS and invasive breast cancer among Māori women aged 50–69 years having an initial screen.....	82
Figure 3a.1b: Trends in the detection rate of DCIS and invasive breast cancer among Māori women aged 50–69 years having a subsequent screen.....	83
Figure 5a: Trends in the percentage of Māori women aged 50–69 years notified of screening results within 10 working days.....	96
Figure 5b: Trends in percentage of Māori women aged 50–69 years offered first assessment appointment within 15 working days	98
Figure 5c.1: Trends in the percentage of Māori women aged 50–69 years receiving needle biopsy within 5 working days of assessment	100
Figure 5c.2: Trends in the percentage of Māori women aged 50–69 years receiving open biopsy within 20 working days of notification of the need for the operation.....	101
Figure 5d: Trends in the percentage of Māori women aged 50–69 years receiving final diagnostic biopsy results within 5 working days	103

OVERVIEW

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

This report is the third in a new time series of independent Māori monitoring reports commissioned to measure the quality of BSA services for Māori women. Using the standard indicators and targets developed by the National Screening Unit (NSU) for women aged 50 to 69 years, this report presents the results for Māori and non-Māori women aged 45 to 49 years and 50 to 69 years screened by BSA and the Māori/non-Māori ratios for each indicator as a measure of equality or inequality.

Data on coverage, screening and assessment quality, some detection indicators, and timeliness indicators are reported for the two-year period July 2012 to June 2014, while data on early detection are presented for the five-year period July 2009 to June 2014 due to the smaller numbers involved. Time trends are presented in graphs for selected two-year indicators. The previous Māori monitoring report presented indicators for women screened during the period July 2011 to June 2013.

Coverage

BSA screened 47,330 Māori women aged 45 to 69 years during the period July 2012 to June 2014, of whom 34,432 were aged between 50 and 69 years. The total number screened was over 2100 more than during the previous biennium. However, there was no increase in the Māori participation rate, with 65% of eligible Māori women aged 50 to 69 years and 62% of Māori women aged 45 to 49 years screened. There was also an increase in disparities between Māori and non-Māori coverage with relative inequalities increasing from 9% lower to 12% lower for women aged 50 to 69 years and from 13% lower to 16% lower for women aged 45 to 49 years.

BreastScreen South Limited (BSSL) and BreastScreen Counties Manukau (BSCM) achieved the target coverage of 70% of Māori women in each age group. Lead Providers (LPs) who achieved the target for non-Māori but not for Māori included BreastScreen Waitemata and North (BSWN) (Māori 66% vs non-Māori 70%), BreastScreen Auckland Ltd (BSAL) (63% vs 69%), BreastScreen Coast to Coast (BSCtoC) (64% vs 75%), BreastScreen Central (BSC) (66% vs 72%), and BreastScreen Health Care (BSHC) (63% vs 78%). Coverage of Māori women was lowest in BreastScreen Midland (BSM) at 57% (vs 68% of non-Māori women).

The proportion of women rescreened within 27 months was lower for Māori women aged 50 to 69 years who had had an initial screen (60%) than for those whose previous screen was a subsequent screen (83%), both below the target of >85%. For both groups, the timely rescreen rates were lower than the non-Māori rates which were 70% for initial and 88% for subsequent screens.

For Māori women aged 45 to 49 years the proportion receiving timely rescreens was also lower for initial screens, but at 69% it was higher than for the older age group.

Screening and assessment quality

Target values for screening and assessment indicators were generally met or exceeded.

There has been a small decrease in the proportion of Māori women aged 50 to 69 years who had four images or fewer in mobile units (from 78% to 76%), with only four LPs meeting the target of 80%. BSCtoC showed the lowest proportion for mobile units (64%) while the percentage was above target for fixed units (82%). Two LPs did not meet the target for Māori women screened in fixed units (BSCM and BSC).

The target value for technical recall rates was met or was within the confidence interval for fixed and mobile units for most LPs. For women screened at mobile units by BSAL, the target of <3% was within the confidence interval for Māori women (4.2%, CI: 2.9%, 5.9%) and not reached for non-Māori women (3.8%, CI: 3.3%, 4.2%).

Rejected images continued to be within target for all LPs.

For Māori women aged 50 to 69 years the prevalent round rate of referral to assessment exceeded the expected value (11.5%, expected <10%) and specificity was below target (90%, target >93%). The positive predictive value (ppv) was above the target value (14.3%, target ≥9%).

For women having subsequent screens the assessment rate, specificity, false positive and ppv were all on target, with the ppv and cancer detection rates higher for Māori than for non-Māori women.

Early detection

Targets were met or were within the confidence intervals for all early cancer detection indicators for Māori women having an initial or a subsequent screen.

There were 321 breast cancers (239 invasive) detected among Māori women aged 50 to 69 years during this biennium and 82 cancers (56 invasive) detected among Māori women aged 45 to 49 years.

The invasive cancer detection rate from initial screens was around 40% higher for Māori women than for non-Māori women (not statistically significant) and around 60% higher for cancers detected from subsequent screens.

During the five year period, the proportions of invasive cancers that were small tumours and without nodal involvement were similar for Māori and non-Māori women, while the rates of small cancers detected per 10,000 screens were higher for Māori women in both age groups.

Among Māori women aged 50 to 69 years, three quarters (77%) of both initial and subsequent screen detected invasive cancers had no nodal involvement, both meeting the target values. Nearly 70% of invasive cancers detected among Māori women aged 45 to 49 years had no nodal involvement.

The proportion of Māori women who had screen-detected cancers that were ductal carcinoma in situ (DCIS) was within the target range and was around 30% lower among Māori women than among non-Māori women.

Appropriate and acceptable service

The target for each timeliness indicator was 90%. The target was met for the percentage of Māori women notified of their screening results within 10 working days, although there was a decrease in this indicator since the previous report. The proportion receiving their needle biopsy within five working days of assessment exceeded the target at 96%.

However, the decreasing trend in the proportion of women who were offered their first assessment appointment within 15 working days (74%) continued. There was also no improvement in the

percentage who received their final biopsy results within five working days (81%) (although the target was met by BSCM and BSSL). The proportion of women receiving their open biopsy procedure within 20 working days remained low at just under 50%.

Summary

In summary, the trend of increasing coverage of Māori women for BSA overall appears to have stalled. Timely rescreening rates are considerably lower among women who had an initial screen than those whose previous screen was subsequent. Screening and assessment quality indicators are generally on target, although there may be a decreasing trend in the proportion of Māori women screened in mobile units who have four images or fewer.

Māori women participating in breast screening were more likely than non-Māori women to be diagnosed with breast cancer, with similar proportions of small tumours and node-negative cancers, and lower proportions of DCIS.

The proportions of women receiving their first assessment appointments within 15 working days remained under target, but almost all women received their needle biopsy within 5 days of their assessment. Although relatively few women required an open biopsy, only half received the procedure within 20 working days. There may be a decreasing trend in the timely receipt of final diagnostic biopsy results in some Lead Provider regions.

Discussion

Coverage

Māori women have a higher background incidence of breast cancer and a higher breast cancer detection rate within BSA. Maximising the participation of Māori women is therefore very important. The trend of increasing participation in breast screening appears to have stalled in this biennium. Of note:

- This report used revised population projections
- There may be insights to gain from the variation in coverage between DHBs within a Lead Provider region, including the role of independent service providers
- LPs with high coverage at age 50–69 years also have high coverage at ages 45–49 years
- Rates of rescreening within 27 months are lower among women whose previous screen was their first with BSA than for those who'd attended more than once. In addition timely rescreen rates are higher for women who had their initial screen at age 45–49 years than for those who started screening with BSA at age 50–69 years
- A qualitative study of Māori women's journeys through BSA screening and assessment procedures is being conducted in 2015 and may provide insights into factors that affect rescreening rates.

Screening quality

With the change to digital technology in mobile units, there has been significant improvement in technical recall rates with all achieving low rates, but some LPs are showing an increase in the proportion of Māori women screened in mobile units who are having more than four images.

Timely journeys through to treatment

Timeliness of a woman's progression through the screening, assessment and treatment pathway is important as small delays at each point can accumulate to longer time from suspicion of cancer to treatment. Although nearly all women receive their needle biopsy within 5 working days, some LPs are showing a declining trend in the percentage offered their first assessment appointment within 15 working days. Only half of Māori women requiring an open biopsy received their procedure within

20 working days. In addition, the accompanying treatment monitoring report shows that only half of Māori women received their first treatment surgery within 20 working days.

System, service and workforce development for equity

The Ministry of Health's framework for "Equity of Health Care for Māori" is a useful guide for health practitioners, organisations, and those who work at the level of the health system.

Organisations and staff involved in BSA and staff are encouraged to use the framework to help them achieve equitable care and breast screening outcomes for Māori women.

All staff involved in the breast screening programme have a role in supporting the service to be culturally safe. Ongoing professional development in cultural competence can support organisations to ensure culturally responsive practice. Staff may also need access to resources and/or cultural advice when required, to ensure they are well equipped to serve Māori women successfully.

Māori workforce development is an important component of improving access to breast screening. Promotion of health careers to Māori could include Medical Radiation Technology, as well as other health professions in the breast screening and cancer care. Appropriate recruitment and retention policies and practices can also ensure BSA workplaces provide supportive environments for Māori staff.

INDIVIDUAL LEAD PROVIDER PROFILES

Introduction

The intention of this section is to provide a clear overview for each Lead Provider of how well they are achieving the targets for Māori women, and which indicators require continued focus.

The section provides a summary for each Lead Provider of their indicators against the targets, for Māori women screened in their region, aged 50 to 69 years. Data for most indicators is for the two year time period 1 July 2012 to 30 June 2014, however some detection data is provided for the 5-year period 1 July 2009 to 30 June 2014 in order to maximise numbers and increase statistical precision. Indicators which cover the 5-year time period are:

- 2g The proportion of benign biopsies weighting less than 30g
- 3c The proportion and rate of invasive cancers less than or equal to 15mm
- 3d The proportion of invasive cancers with no nodal involvement

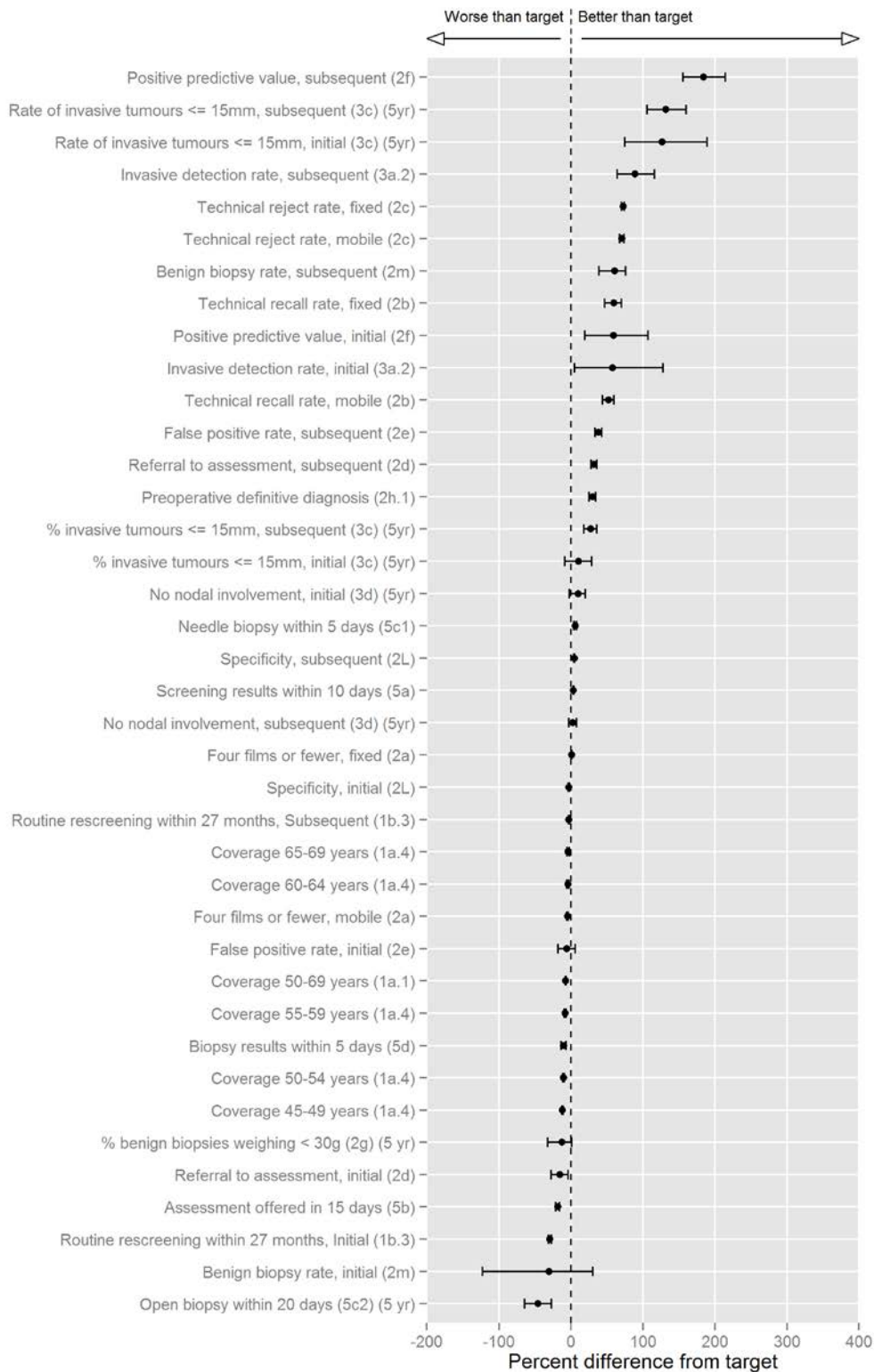
The data presented in the graphs shows the percentage difference of each indicator from the target value. The central line of the graph represents the target and all indicators with bars to the right of this line achieved or exceeded the target, those to the left did not achieve the target value, if the confidence interval did not include the central line.

Indicator 3e, the proportion of cancers that were DCIS, is not presented on the graphs because the target is a range of values. This indicator was within the target range for Māori in all Lead Providers.

In some cases an indicator is not presented on the graph if there is no relevant data (for example where there are no open biopsies). These omissions are noted beneath the graph.

Total BreastScreen Aotearoa

Figure i: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, Total BSA



BreastScreen Waitemata Northland

BreastScreen Waitemata Northland (BSWN) met or exceeded the target values for Māori women aged 50 to 69 years for almost all indicators. Coverage appears to be declining however. Rates of rescreening within 27 months were considerably lower for initial screens than for subsequent screens. For women having their initial screen, the rate of referral for assessment was a little higher than target but the ppv was above target. The proportion offered timely assessment appointments appears to be improving. Early cancer detection targets were all met or exceeded.

Coverage

Coverage of Māori women aged 50 to 69 years has decreased slightly since the previous report from 70% to 66% in this biennium. Coverage was higher and on target for women aged 60 years and over.

The proportion of Māori women rescreened within 27 months was lower for women whose previous screen was initial (61%) than for those whose previous screen was a subsequent screen (82%) (target >85%). There appears to be a decreasing trend in this indicator.

Screening and Assessment quality

BSWN met the target values for Māori women for the proportions having four images or fewer, technical recall rates, and rejected images for both fixed and mobile sites.

For Māori women having subsequent screens, the target values were met or exceeded for referrals to assessment, false positive rate, positive predictive value, specificity, and benign biopsy rate.

For BSWN Māori women having an initial screen, the referral rate, false positive rate, and specificity did not meet the target values but were trending in the right direction, and the positive predictive value was on target. Four women out of 348 screened had a benign biopsy (11.5%).

The rate of preoperative definitive diagnosis and the proportion of benign biopsies 30gm or less met the target or were within the confidence interval.

Early detection

The target values for early detection of invasive breast cancer were all met or exceeded for Māori women having an initial or a subsequent screen including the proportions and rates of small tumours and those without nodal involvement. The proportion of cancers that were DCIS was 15%, within the target range of 10–25%.

Appropriate and acceptable service (timeliness)

The target values of 90% were met or exceeded for time taken to provide screening results, time from assessment to needle biopsy completion, and time to receipt of biopsy results.

Indicators below target included the proportions offered their first assessment appointment within 15 working days (84%) and the proportion receiving their open biopsy within 20 working days (42%, comprising 5 out of 12 women who received an open biopsy).

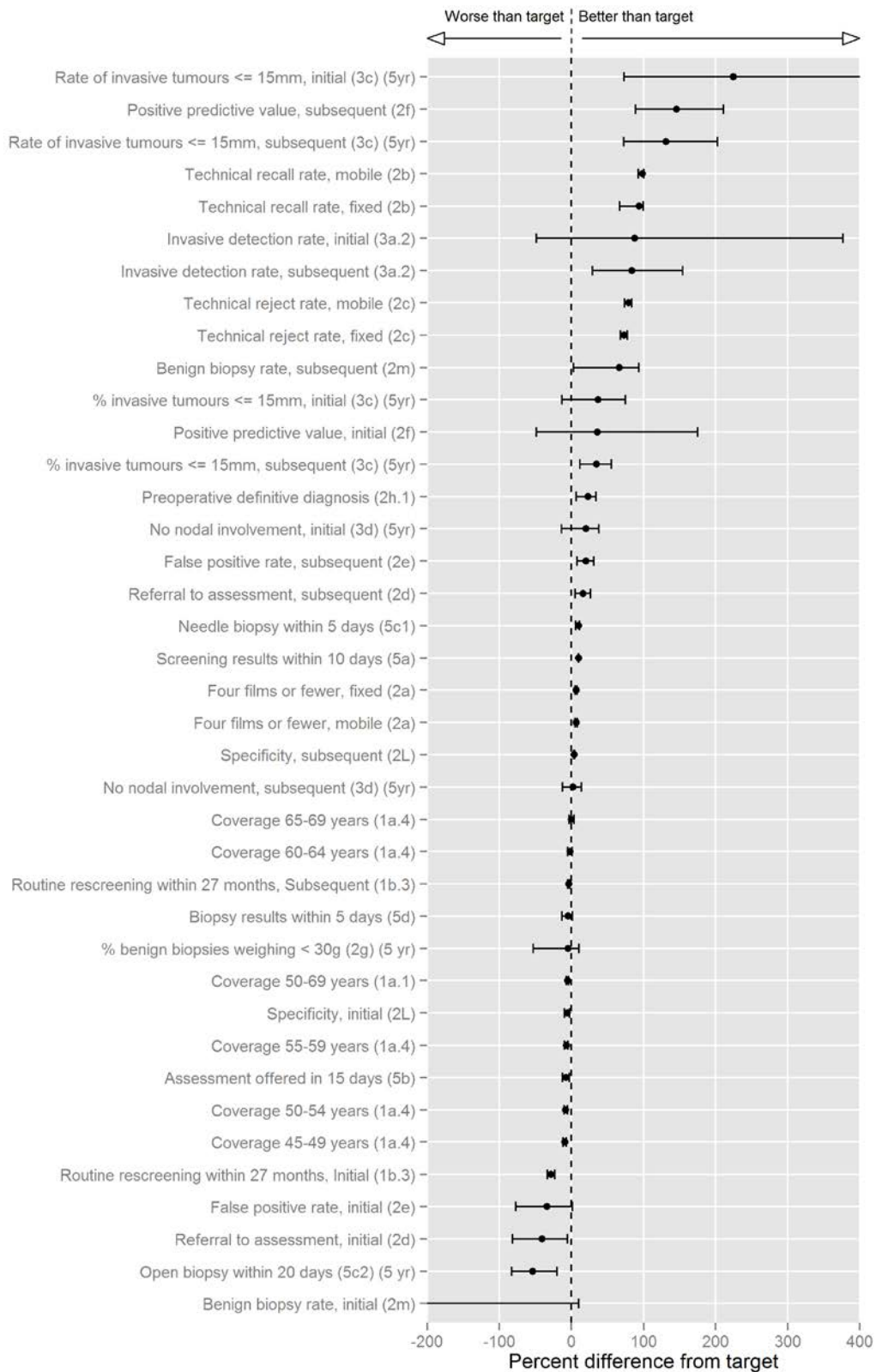
In summary:

For most indicators, the target value was exceeded or was within the confidence interval.

Indicators not reaching target values included:

- Coverage and the percentage rescreened within 27 months (lower after an initial screen)
- Referral to assessment and specificity for initial screens (which appear to be improving)
- The proportions offered assessment within 15 days and receiving open biopsy within 20 days.

Figure ii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSWN



BreastScreen Counties Manukau

BreastScreen Counties Manukau (BSCM) met or exceeded the target for Māori women aged 50–69 years for nearly all indicators.

Coverage

Coverage of Māori women aged 50–69 years increased to 71% (target 70%) and was 70% or more in each age group. The proportions of eligible Māori women who were rescreened within 27 months remained under target at 52% for initial screens and 79% for subsequent screens (target 85%).

Screening and assessment quality

Targets were exceeded for screening and assessment indicators for the proportion of Māori women having technical recalls, and technical rejects for women screened in mobile and fixed units. Targets were also met for the preoperative diagnosis rate and the benign biopsy rates.

The proportion of Māori women having four images or fewer did not meet the 80% target in fixed sites (72%) or mobile units (74%).

For Māori women having an initial or subsequent screen, the rates of referral to assessment, false positive rate, specificity, positive predictive value, and invasive cancer detection rates all met or exceeded the target values.

Early detection

Targets were met for Māori women for the proportions and rates of invasive cancers ≤ 15 mm in diameter, the proportions without nodal involvement detected from initial and subsequent screens, and the percentage of all cancers that were DCIS.

Acceptability and appropriateness

Targets were met for the timely provision of screening results, timely receipt of needle biopsy, and the timely receipt of final diagnostic biopsy results.

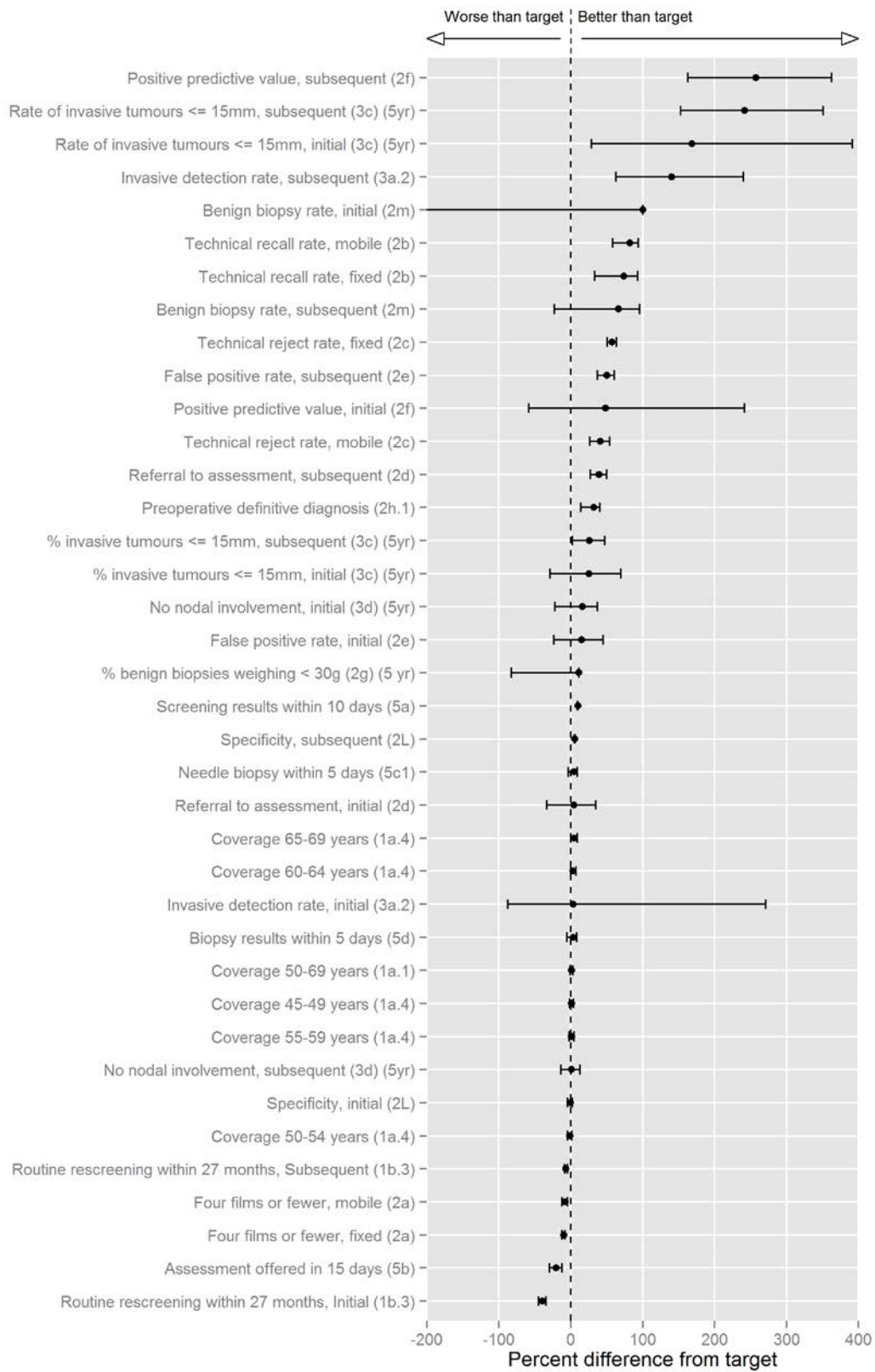
The indicator for time taken from screening to first offer of assessment was not met (72%, target value 90%).

In summary, BSCM met or exceeded the target values for most coverage, screening and assessment quality, early detection and timeliness targets. The coverage of Māori women was on or above target in each age group, including women aged 45–49 years.

Targets were not met for:

- Rescreening within 27 months, which was low for initial screens and remained static for subsequent screens.
- The proportion of women having 4 images or fewer in fixed sites (242 more Māori women required to reach the target) and mobile units (60 more required).
- The timely first offer of assessment. The target would have been reached if 26 more Māori women had received their first offer within 15 working days of screening.

Figure iii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSCM



Note: No open biopsies were conducted for Māori women aged 50–69 years in this biennium.

BreastScreen Auckland Limited

BSAL met the target values for most indicators for Māori women aged 50 to 69 years apart from coverage, timely rescreening from initial screens, timely offer of first assessment and timely receipt of diagnostic biopsy results.

Coverage

Participation of Māori women aged 50 to 69 years appears to have stalled, with 63% coverage during this biennium (target 70%).

The proportion rescreened within 27 months was on target at 86% for subsequent screens but was only 65% for women whose previous screen was their initial screen with BSA. There may be a downward trend in timely rescreening from initial screens.

Screening and assessment quality

The target value was met or within the confidence interval for the proportions of women having 4 images or fewer, rejected images, the pre-operative diagnosis rate, the benign open biopsy rate, and the proportion of benign open biopsies weighing <30g.

The technical recall rate met the target for fixed sites. Although the rate did not meet the target for Māori women screened at mobile sites (4.2%, target <3%), the target value was within the confidence interval.

For Māori women having an initial or a subsequent screen, the target was met or was within the confidence interval for the assessment rate, the false positive rate, the positive predictive value, specificity, and the invasive detection rate. There were no invasive cancers detected from initial screens during this biennium.

Early detection

For subsequent screens, the target was within the confidence interval for invasive cancers 15mm or less, or with no nodal involvement. Only 5 invasive cancers were diagnosed from initial screens over the five years, one of which was 15mm or less (target within the confidence interval). Three had no nodal involvement (target within the confidence interval). The percentage of screen detected cancers that were DCIS was within the target range.

Appropriate and acceptable service

The target value of 90% was met for the following indicators: time taken for provision of screening results, time taken from assessment to final diagnostic needle biopsy. There were no open biopsies among Māori women in this biennium.

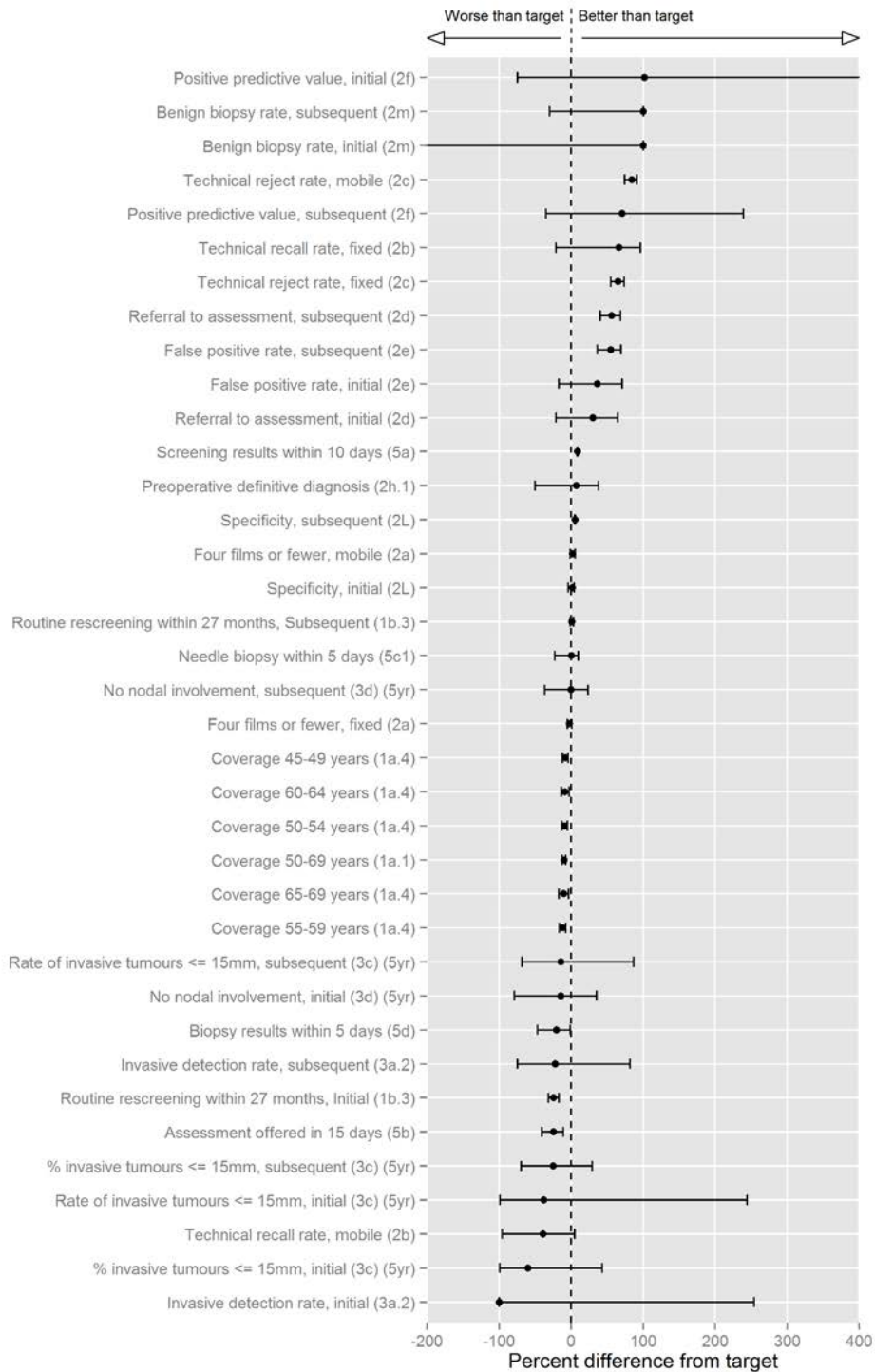
The target was not met for the proportion of Māori women offered their first assessment appointment within 15 working days (68%, target 90%); nor the percentage who received their final diagnostic biopsy results within 5 working days (71%, target 90%).

In summary:

Quality indicator targets were met by BSAL for most screening and assessment, early detection, and timeliness indicators. Indicators below target include:

- coverage (in each age group)
- rescreening within 27 months of an initial screen
- time to first assessment appointment
- timely receipt of results of final diagnostic biopsy results.

Figure iv: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSAL



Note: No open biopsies were conducted for Māori women aged 50–69 years in this biennium.

BreastScreen Midland

The BreastScreen Midland (BSM) region includes a quarter of the eligible population of Māori women. It therefore has a substantial impact on the national BSA indicators for Māori women. BSM met or exceeded the target values for Māori women aged 50 to 69 years for the majority of indicators, but coverage has not improved over the last two years, and the proportion of women rescreened within 27 months appears to be declining. Other timeliness indicators did not meet the target values and may be declining.

Coverage

Participation of Māori women aged 50 to 69 years remained static at 57%. This was 15% lower than the non-Māori participation rate in BSM, and well below the target value of 70%. Coverage increased with age, but did not exceed 61% in any age group.

The proportion of Māori women aged 50 to 69 years who were rescreened within 27 months was 50% for women whose previous screen was an initial screen and 77% for those whose earlier screen was a subsequent screen (both below the target of >85%). There appear to be downward trends in rescreening rates for Māori women having an initial or subsequent screen.

Screening and assessment quality

The target values were met for Māori women screened in fixed units for the proportions of women having 4 images or fewer, technical recall, and rejected images. For women screened in mobile units, the targets were met for technical recalls (a significant improvement from the previous biennium) and rejected images. However, the target was not met for the proportions of women having four images or fewer (72%, target >80%).

The targets for pre-operative definitive diagnosis, benign biopsy rates, were met or within the confidence interval. Over the five year period, the target was not met for the percentage of benign open biopsies that weighed less than 30 grams (70%, target >90%).

For women having subsequent screens the targets were met for referrals to assessment, false positives, positive predictive value, specificity of subsequent screens, and the invasive detection rate.

For women having initial screens, the expected values were not met for the rate of referral to assessment (14%, expected value <10%), the false positive rate (12%, expected value <9%), and specificity (88%, target value >93%). However, the invasive cancer detection rate was above target at 11 per 1,000 screens (target ≥ 6.1 per 1,000 screens).

Early detection

For both initial and subsequent screens, the target values were met or exceeded for the proportion and rates of invasive cancers ≤ 15 mm, and without nodal involvement. The proportion of screen-detected cancers that were DCIS was within the target range.

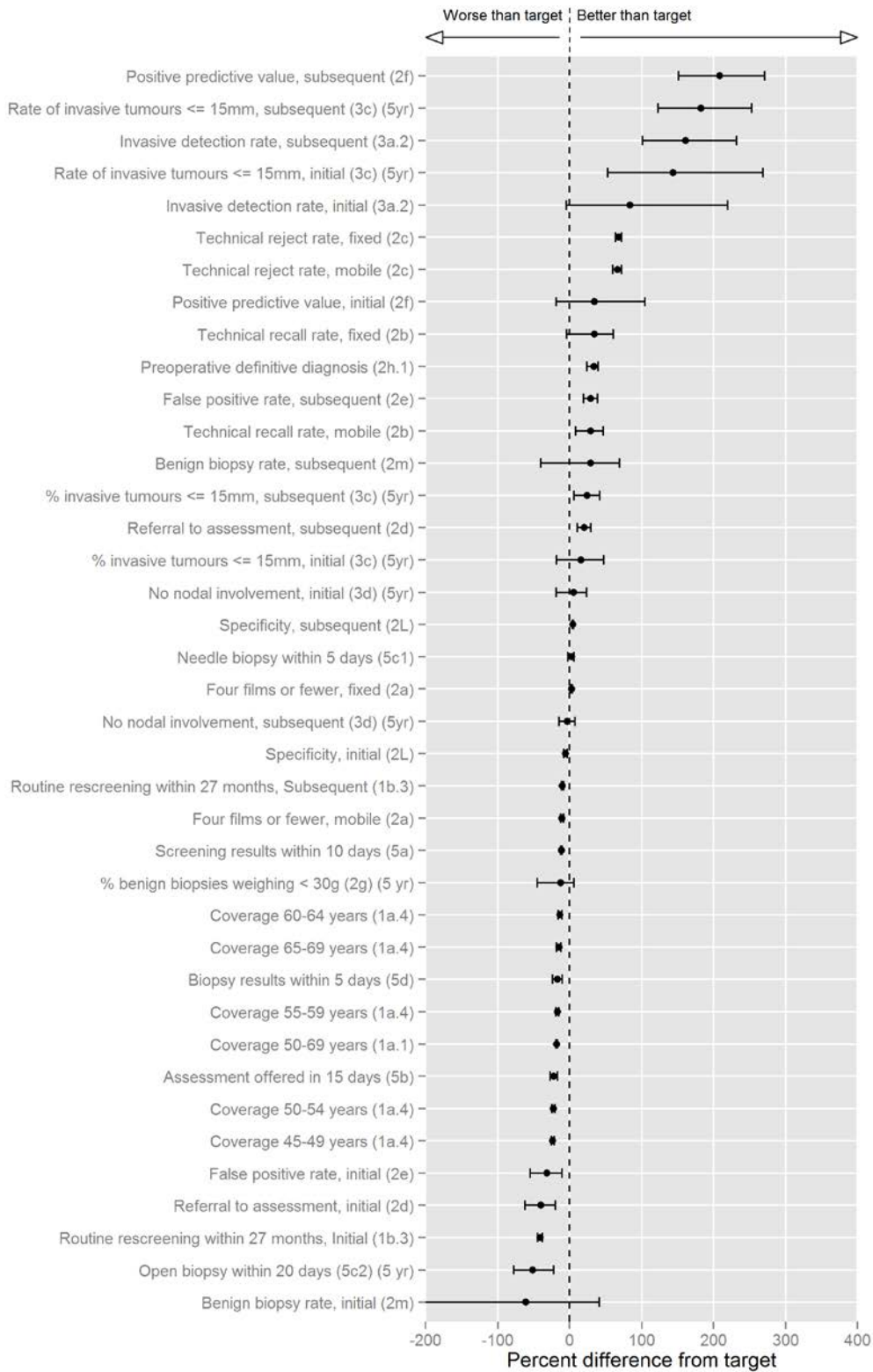
Appropriate and acceptable service

The target value of 90% was met for the time to receipt of needle biopsy, but not for other timeliness indicators. Only 80% received their screening results within 10 working days, showing a downward trend; 70% were offered their first assessment appointment within 15 working days; 44% received their open biopsy procedures within 20 working days; 75% received their final diagnostic biopsy results within 5 working days. Some of these may also be trending down.

In summary, BSM met the target values for Māori women for the majority of indicators, showing a significant improvement in technical recall rates in mobile units, but the targets were not met for the following indicators:

- Proportion having four images or fewer in mobile units (72%, target >80%)
- Timeliness indicators, including timely receipt of screening results, timely offer of first assessment appointment, timely receipt of open biopsy, timely receipt of biopsy results
- Coverage in each age group and the percentages rescreened within 27 months.

Figure v: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSM



BreastScreen Coast to Coast

BreastScreen Coast to Coast (BSCtoC) includes the second largest proportion of the eligible Māori population (20%). BSCtoC met the target values for most indicators for Māori women aged 50 to 69 years apart from coverage (which appears to have stalled), timely rescreening after an initial screen, the proportion receiving 4 images or fewer in mobile units, timely offer of assessment appointments and timely receipt of final diagnostic biopsy results.

Coverage

Coverage of Māori women aged 50 to 69 years was 64% in this biennium (target 70%), showing no improvement while non-Māori coverage remained above target at 75%. Coverage was slightly higher among Māori women aged 60 to 69 years (67%) and lowest in the 45 to 49 year age group (56%).

BSCtoC exceeded the target of 85% for the proportion returning for a routine re-screen within 27 months of a subsequent screen (88%), but did not meet the target value for timely re-screening after an initial screen (74%).

Screening and assessment quality

The target values were met for Māori women for the technical recall rate, rejected images, the pre-operative definitive diagnosis rate, the proportion of women having 4 images or fewer in fixed units, the benign biopsy rate and the proportion of open biopsies weighing less than 30g.

However, only 64% of women screened in mobile units had 4 images or fewer (target >80%) with no improvement since the previous report.

Among Māori women having a subsequent or initial screen, target values were met or were within the confidence interval for referrals to assessment, false positives, the positive predictive value, specificity, and the invasive cancer detection rate.

Early detection

For Māori women having initial or subsequent screens, the target values were met or were within the confidence interval for the proportion and rate of invasive cancers ≤ 15 mm and invasive cancers without nodal involvement. The proportion of all cancers that were DCIS was also within the target range.

Appropriate and acceptable service

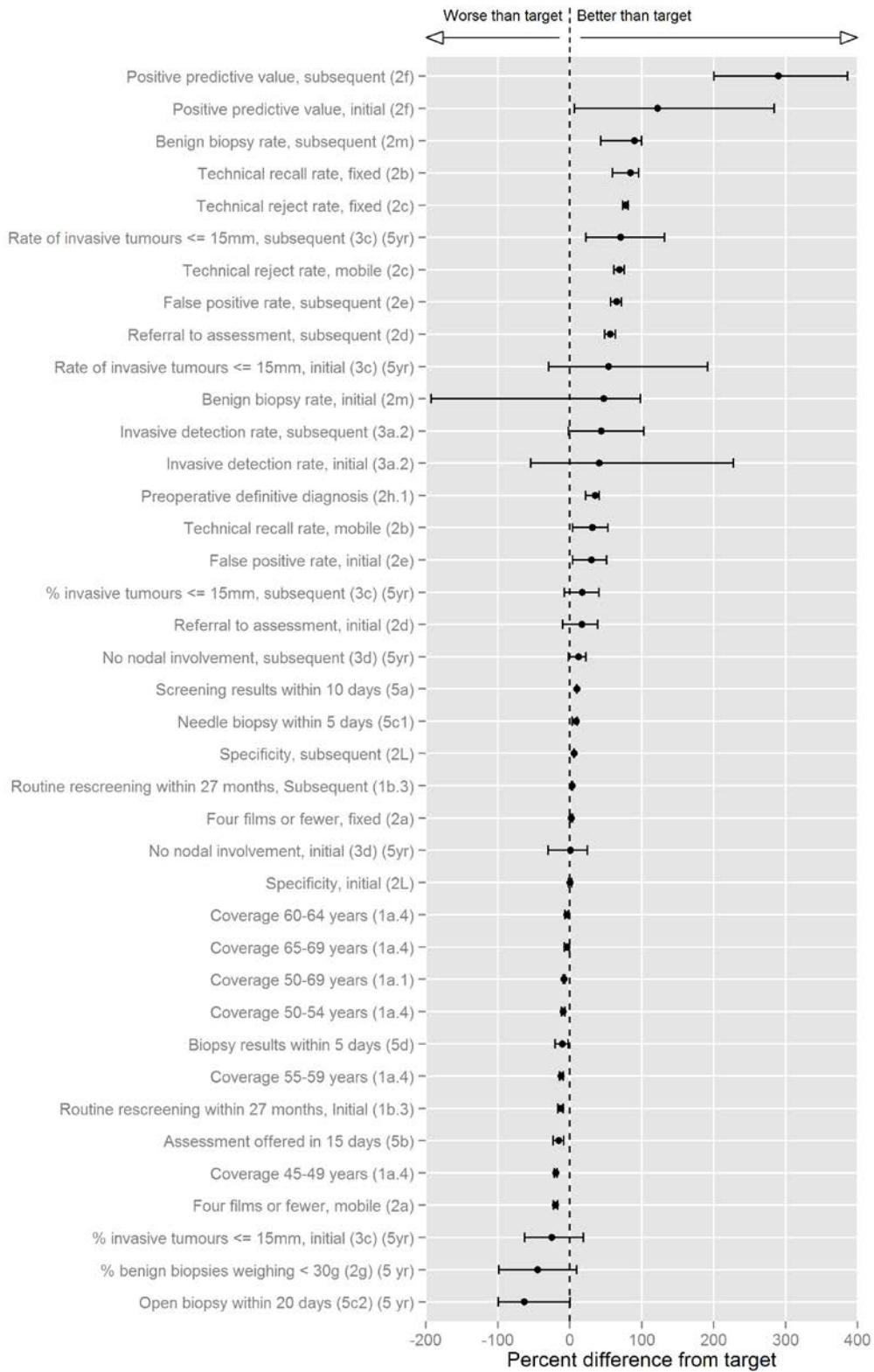
Target values (90%) were met for the timely notification of screening results and the timely receipt of needle biopsy. Indicators that didn't meet the target included the percentage offered their first assessment appointment within 15 working days (76%), and the percentage receiving biopsy results within 5 days (81%). Only three Māori women aged 50–69 years had an open biopsy, one of whom received it within 20 working days.

In summary: BSC met the target values for Māori women aged 50 to 69 years for most screening and assessment quality indicators, all early detection indicators and some of the timeliness indicators. The rescreening target was also met for women who had had a subsequent screen.

Indicators for which the targets were not met included:

- the proportion in mobile units having 4 images or fewer
- the proportions offered assessment within 15 working days
- timely receipt of biopsy results
- coverage and timely rescreening of women who have had an initial screen. More focus on increasing coverage in the younger age groups may help to lift the overall coverage.

Figure vi: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSCtoC



BreastScreen Central

BreastScreen Central (BSC) met or exceeded the targets for Māori women aged 50 to 69 years for most indicators, apart from coverage, timely rescreening, and the percentage who received their biopsy results within five working days.

Coverage

After a small decrease, coverage of Māori women aged 50 to 69 years has improved again to reach 66% (target 70%). Coverage of BSC Māori women increased with age, reaching 68% for women aged 60–69 years. The proportion of screens that were initial continued to decline.

The proportions of Māori women who returned for a routine rescreen within 27 months were 67% for those whose previous screen was an initial screen with BSA and 79% for those whose previous screen was a subsequent screen. Both were below the target of 85%; with the subsequent rescreen rate showing a possible downward trend.

Screening and assessment quality

Targets were met by BSC or were within the confidence interval for the proportion having 4 images or fewer in mobile units (below target for fixed units at 76%); technical recall rates in both fixed and mobile sites, technical reject rates, the preoperative diagnosis rate, the benign biopsy rate and the proportion of benign open biopsies weighing less than 30 grams.

For Māori women having a subsequent or initial screen, target or desired values were met for the rate of referral to assessment, false positive rate, positive predictive value, specificity, and the invasive cancer detection rate.

Early detection

For Māori women having initial or subsequent screens, the target was met or was within the confidence interval for the proportions and rates of invasive cancers that were ≤ 15 mm in diameter, without nodal involvement and the proportion of all cancers that were DCIS.

Appropriate and acceptable service

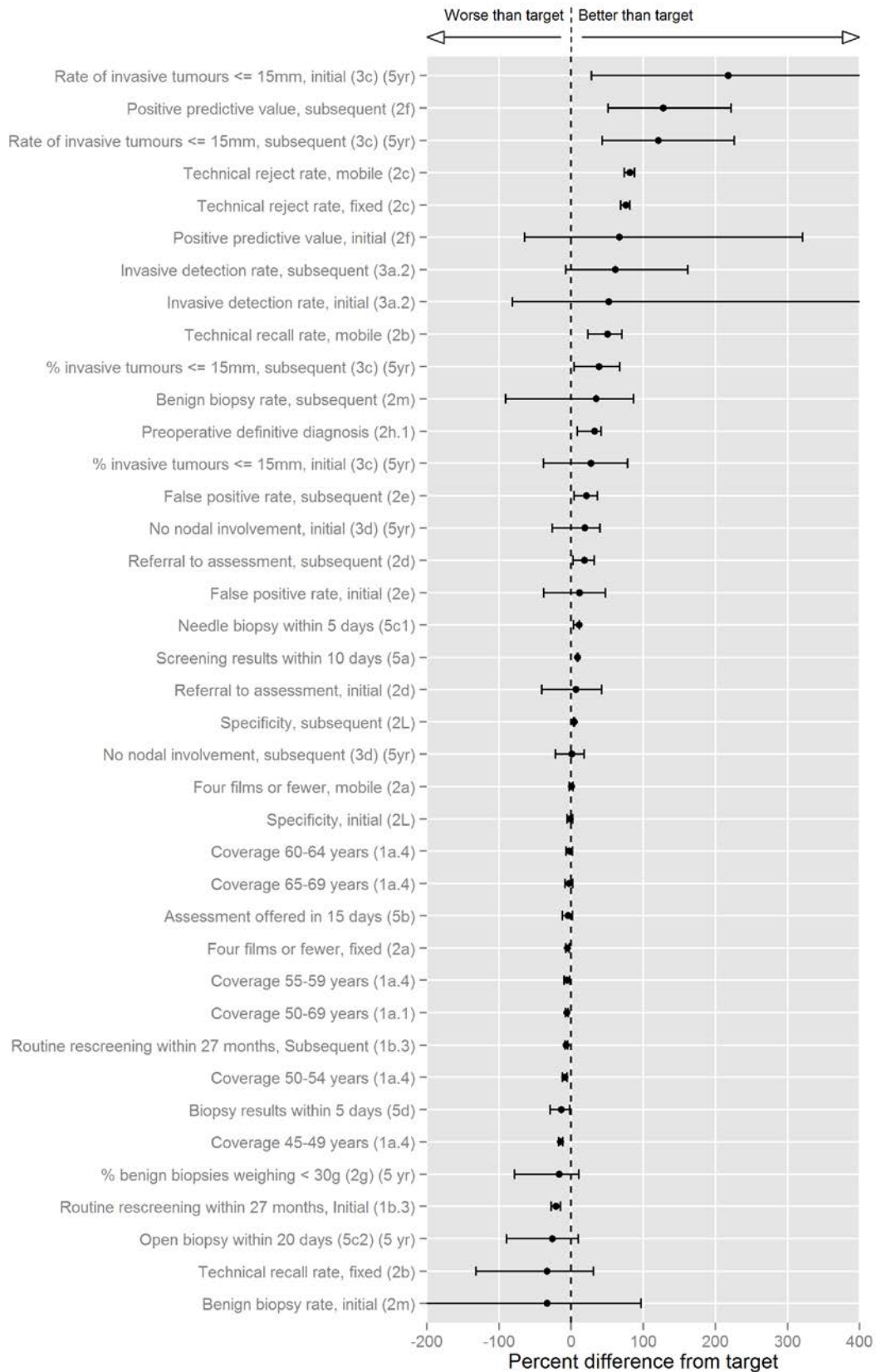
The target value of 90% was met for the timely receipt of screening results, offer of a first assessment appointment, and receipt of needle biopsy within five days. The target was within the confidence interval for the indicator on time to receipt of open biopsy (2 out of 3 open biopsies were received within 20 working days).

The proportion who received their biopsy results within 5 days was under target at 78%. There were 11 Māori women who didn't receive their results within 5 days. Only 6 more were needed to reach the 90% target.

In summary: Coverage of Māori women returned to the previous level of 66%. Timely routine rescreening was higher for women who'd had a subsequent screen than for those whose previous screen was initial, but neither reached the target of 85%.

For all other indicators, apart from the timely receipt of biopsy results and the proportion screened in fixed units who had four images or fewer, the target value was met or was within the confidence interval.

Figure vii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSC



BreastScreen South Limited

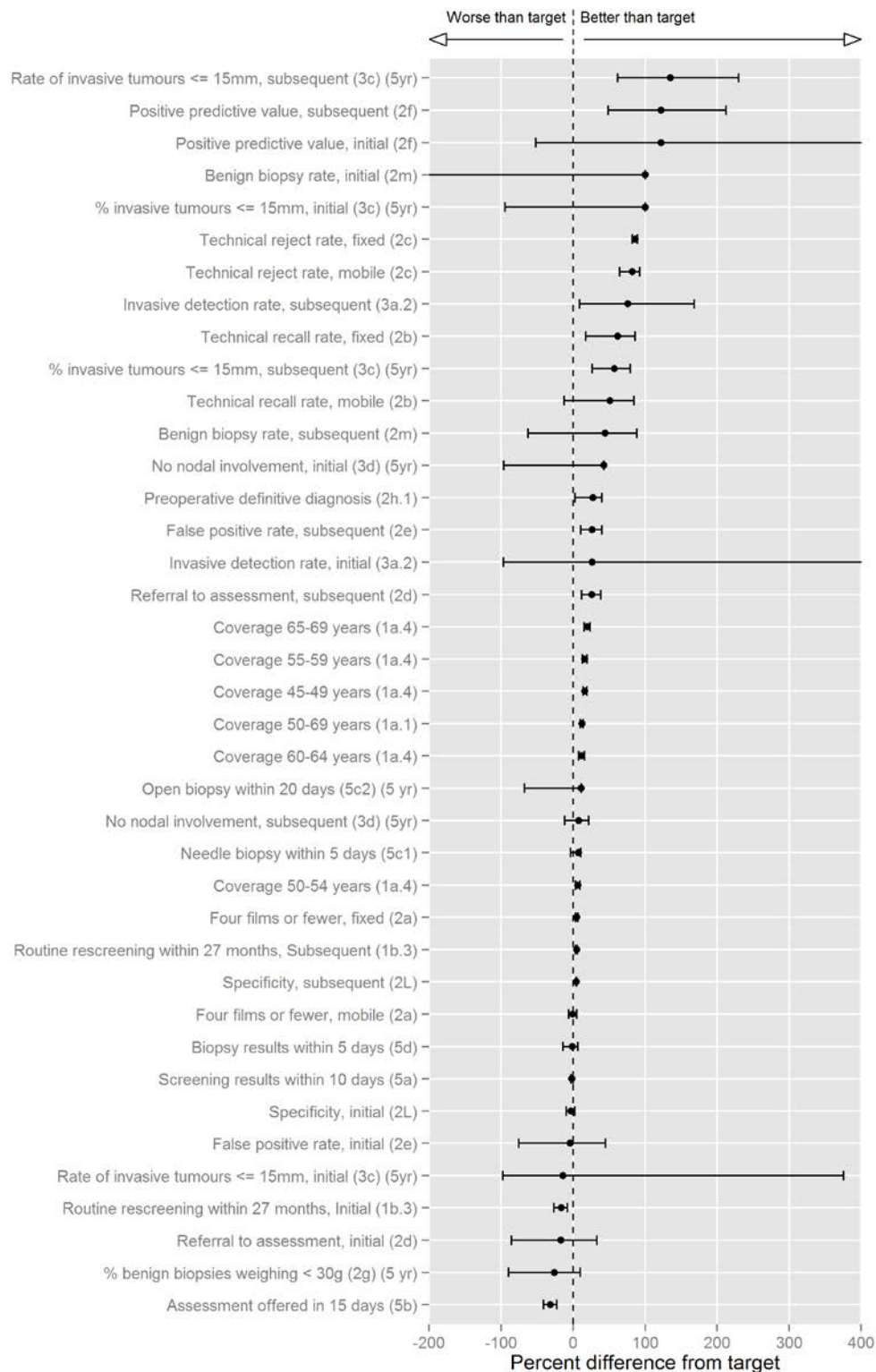
BreastScreen South Ltd (BSSL) continued to meet or exceed the target values for Māori women aged 50 to 69 years for nearly all indicators, maintaining high and equitable coverage and quality, despite the ongoing challenges resulting from the Canterbury earthquakes.

The only indicators that were below the target values were

- The percentage of women receiving their screening results within 10 working days (89%) which was only just below target, but showing a declining trend.
- The percentage of women offered their first assessment appointment within 15 working days (61%, target 90%). This indicator continued to show a declining trend.
- The proportion of women routinely rescreened within 27 months of an initial screen (71%, target >85%). The rescreening indicator for subsequent screens was above target at 89%.

There were only four benign open biopsies among Māori women during the five years July 2009 to June 2014, three of which weighed less than 30 grams.

Figure viii: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSSL



BreastScreen Health Care

BreastScreen Health Care (BSHC) met the target values for Māori women aged 50 to 69 years for the majority of indicators. Coverage is increasing but remains relatively low compared to non-Māori. Some timeliness indicators were well below target.

Coverage

The coverage of Māori women aged 50 to 69 years continues to trend upwards in BSHC and reached 63% (target 70%) but is considerably lower than the non-Māori coverage (78%).

The proportion of Māori women rescreened within 27 months was 88% for those whose previous screen was a subsequent screen, but only 68% for those whose previous screen was initial (target >85%). If 14 more women had timely rescreens after an initial screen, the target would have been met.

Screening and assessment quality

The target value or expected values were met or exceeded for the technical recall rate, rejected images, benign biopsy rate, and pre-operative diagnosis rate. There were no open biopsies among Māori women aged 50 to 69 years during this two year period. The proportion of women who received 4 images or fewer at mobile units did not meet the target value (75%, target >80%), but the target was met for women screened at fixed units.

For Māori women having subsequent screens the target was met or exceeded for referrals to assessment, false positives, positive predictive value, and specificity. The target was within the confidence interval for the invasive cancer detection rate.

There were only 76 initial screens among Māori women aged 50 to 69 during the two years with only nine women referred for assessment, among whom two women had cancers detected. For all assessment indicators, the targets for initial screens were met or were within the confidence intervals.

Early detection

During the five year period July 2009 to June 2014, 11 Māori women were diagnosed with invasive breast cancer from subsequent screens and 2 from initial screens. The targets were met for the proportions and rates of invasive cancers that were 15mm or less, or without nodal involvement for both initial and subsequent screens. The proportion of all screen-detected cancers that were DCIS was also within the target range.

Appropriate and acceptable service

BSHC met the target values of 90% for the timely receipt of screening results and timely receipt of needle biopsy. There were no open biopsies among Māori.

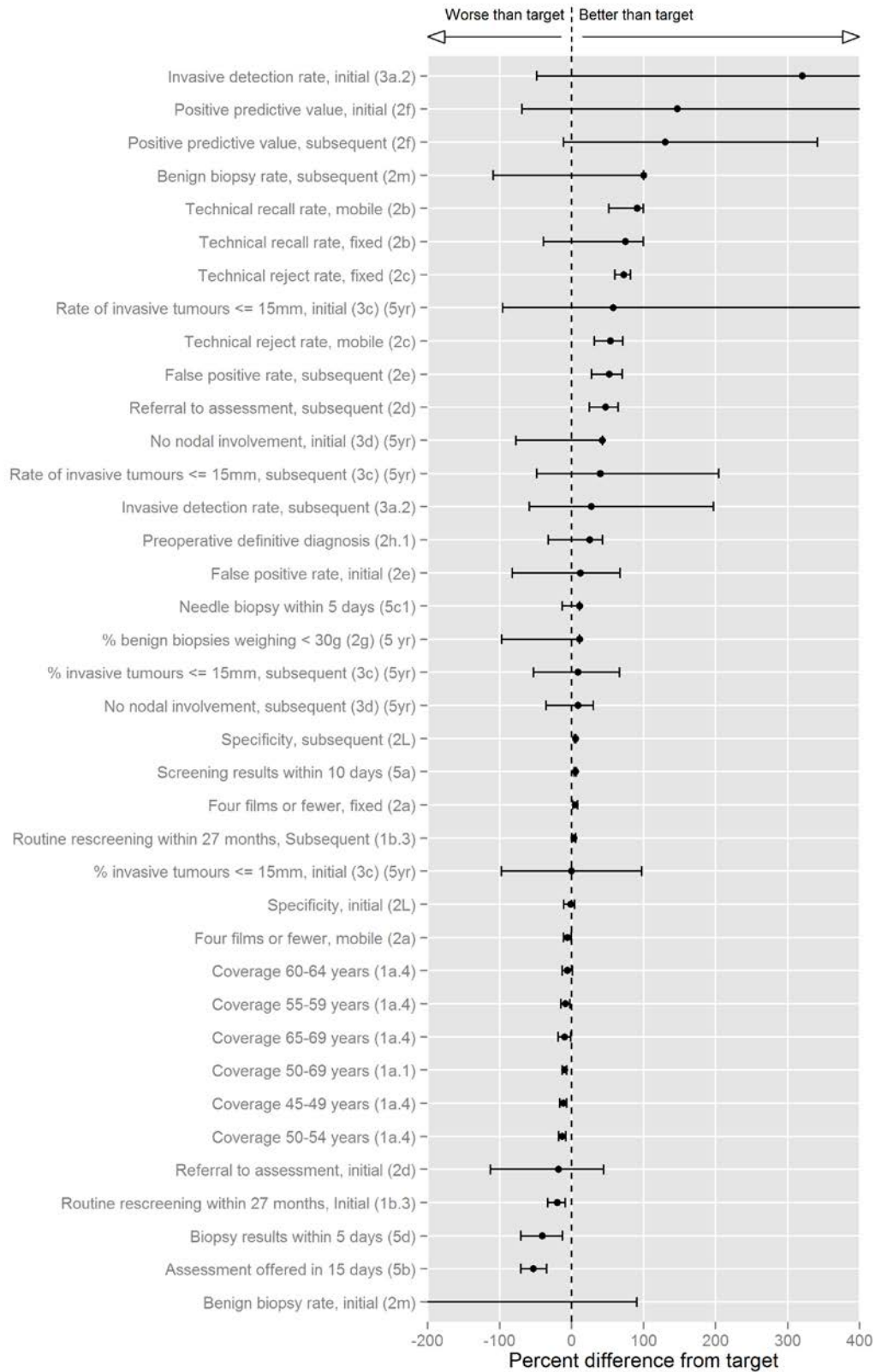
Only 42% of Māori women were offered a first assessment appointment within 15 working days showing no change since the previous report and only 53% (8 out of 15 women) received their final diagnostic biopsy results within 5 working days.

In summary:

The target values were met or were within the confidence interval for Māori women screened by BSHC for most screening and assessment quality indicators, early detection indicators, and half of the acceptability (timeliness) indicators.

Indicators significantly below the target value included coverage in each age group, timely rescreening after an initial screen, the proportion having 4 images or fewer in mobile units, timely offers of first assessment appointments, and timely receipt of diagnostic biopsy results.

Figure ix: Indicators above and below target for Māori women aged 50 to 69 years, screened during July 2012 to June 2014, BSHC



Note: No open biopsies were conducted for Māori women aged 50–69 years in this biennium.

INTRODUCTION

This Screening and Assessment report is the second in a new time series of reports that include data on the quality of services provided by BreastScreen Aotearoa (BSA) to Māori women aged 45 to 49 years and 50 to 69 years. Previous Māori monitoring reports included only women aged 50 to 64 years. Using the standard indicators and targets developed by the National Screening Unit, it presents the results for Māori and non-Māori women, and the Māori/non-Māori ratios for each indicator as a measure of equality or inequality. Indicators of coverage, screening and assessment quality, and acceptability (timeliness) are presented for women screened during the two-year period July 2012 to June 2014, while early cancer detection indicators are presented for the five-year period July 2009 to June 2014 due to the smaller numbers involved. Treatment indicators are reported in an accompanying Treatment report for the period July 2008 to June 2013.

The right to the highest attainable standard of health for all is reflected in the overarching aim of the New Zealand Cancer Control Strategy to reduce inequalities with respect to cancer. The vision of the National Screening Unit is to save lives, reduce inequalities and build health by leading the delivery of high quality screening programmes, including BSA. Screening contributes to reduced morbidity and mortality from breast cancer by identifying cancers at an early stage, allowing treatment to be commenced sooner than might otherwise have been possible¹.

Disparities in breast cancer outcomes between Māori and non-Māori women are substantial. During the years 2005 to 2007 the breast cancer registration rate for Māori women aged 50 to 64 years was 66% higher than that of non-Māori women, while the breast cancer mortality rate was 84% higher². During the period 2000–2004, 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.³ 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.⁴

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

This series of Māori monitoring reports tracks progress towards the equity goals of the programme. It illuminates 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 Ministry of Health. 2011. *Tatau Kura Tangata: Health of Older Māori Chartbook 2011*. Wellington: Ministry of Health.

³ 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.

⁴ BSA 2004. *BSA National Policy and Quality Standards* Version 1A. Introduction page 11.

BACKGROUND

BreastScreen Aotearoa⁵

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 to 64 years. The age range was to be reviewed at a later date. The decision to restrict screening to this age range was in response to concerns that the health service may not have had sufficient trained staff such as MRTs and radiologists to operate a breast screening programme, and that there may have been major flow-on effects for breast surgery and radiation oncology departments.

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

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

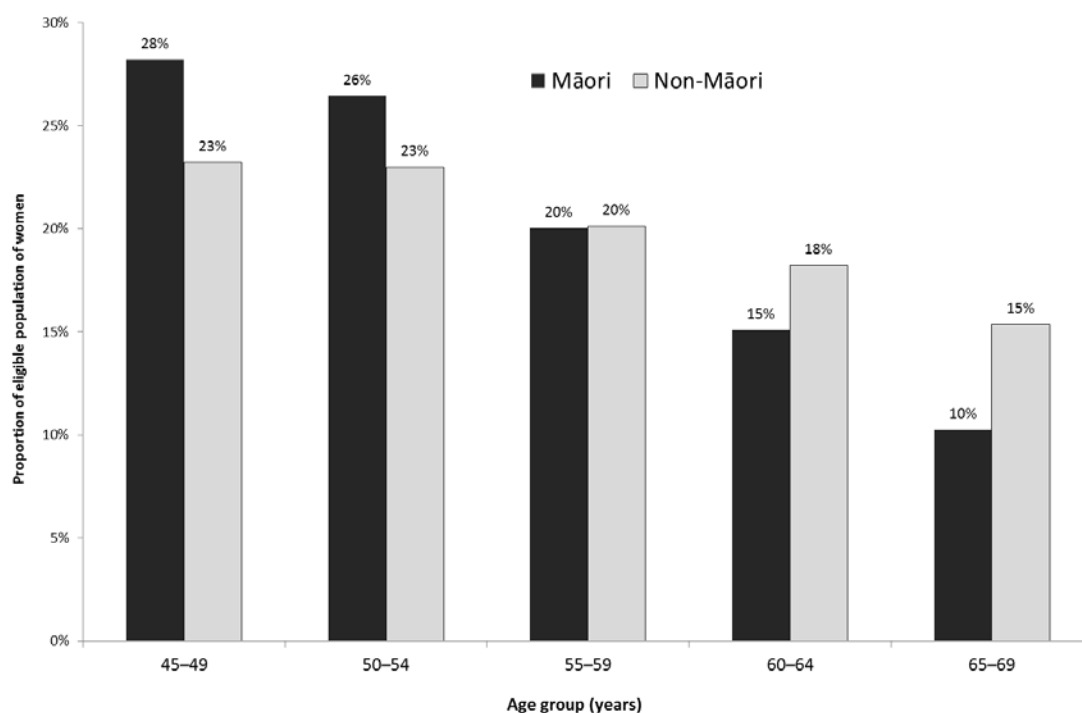
Age extension

Since 1999, BSA has offered free mammography screening for all eligible 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, ages 65–69, 50–69 then 45–49 years. This meant that many providers were unable to start inviting women aged 45–49 to register until July 2005. For the 65–69 year age group, invitations commenced July 2004. This is the third report to present all screening and assessment indicators for Māori and non-Māori women aged 45–49 years and for those aged 50–69 years.

Figure x below shows the Māori population of eligible women has a younger age distribution than the non-Māori population. For example 28% of eligible Māori women are aged 45–49 years compared to 23% of non-Māori women, and 10% are aged 65–69 years compared to 15% of non-Māori.

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

Figure x: Age distribution of Māori and non-Māori eligible populations, mid-year 2013



The National Screening Unit

The National Screening Unit (NSU) is within the National Health Board of the Ministry of Health and is responsible for the development, management and monitoring of nationally-organised population-based screening in New Zealand. It is responsible for:

- National management and oversight of BreastScreen Aotearoa
- Funding of BSA providers
- National co-ordination of Providers
- National recruitment and retention activities
- 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 Service 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 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).

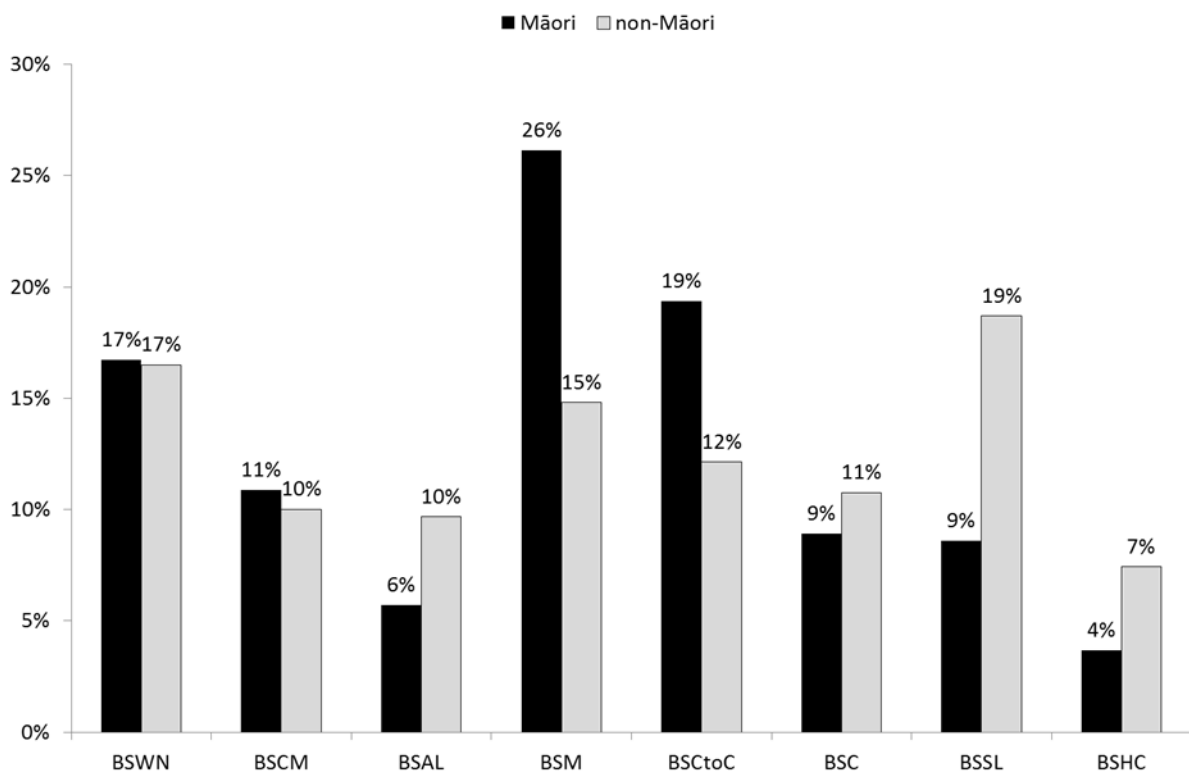
Changes to Lead Providers:

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 Northland (BSWN). BSCM began screening in September 2005. In August 2014, BreastScreen Health Care was replaced by BreastScreen Otago and South.

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 Northland	February 2006 to present
BSM	BreastScreen Midland	1999 to present
BSCtoC	BreastScreen Coast to Coast	1999 to present
BSC	BreastScreen Central	1999 to present
BSSL	BreastScreen South Limited	Dec 1998 to present
BSHC	BreastScreen HealthCare	1999 to July 2014
BSOS	BreastScreen Otago and Southland	August 2014 to present

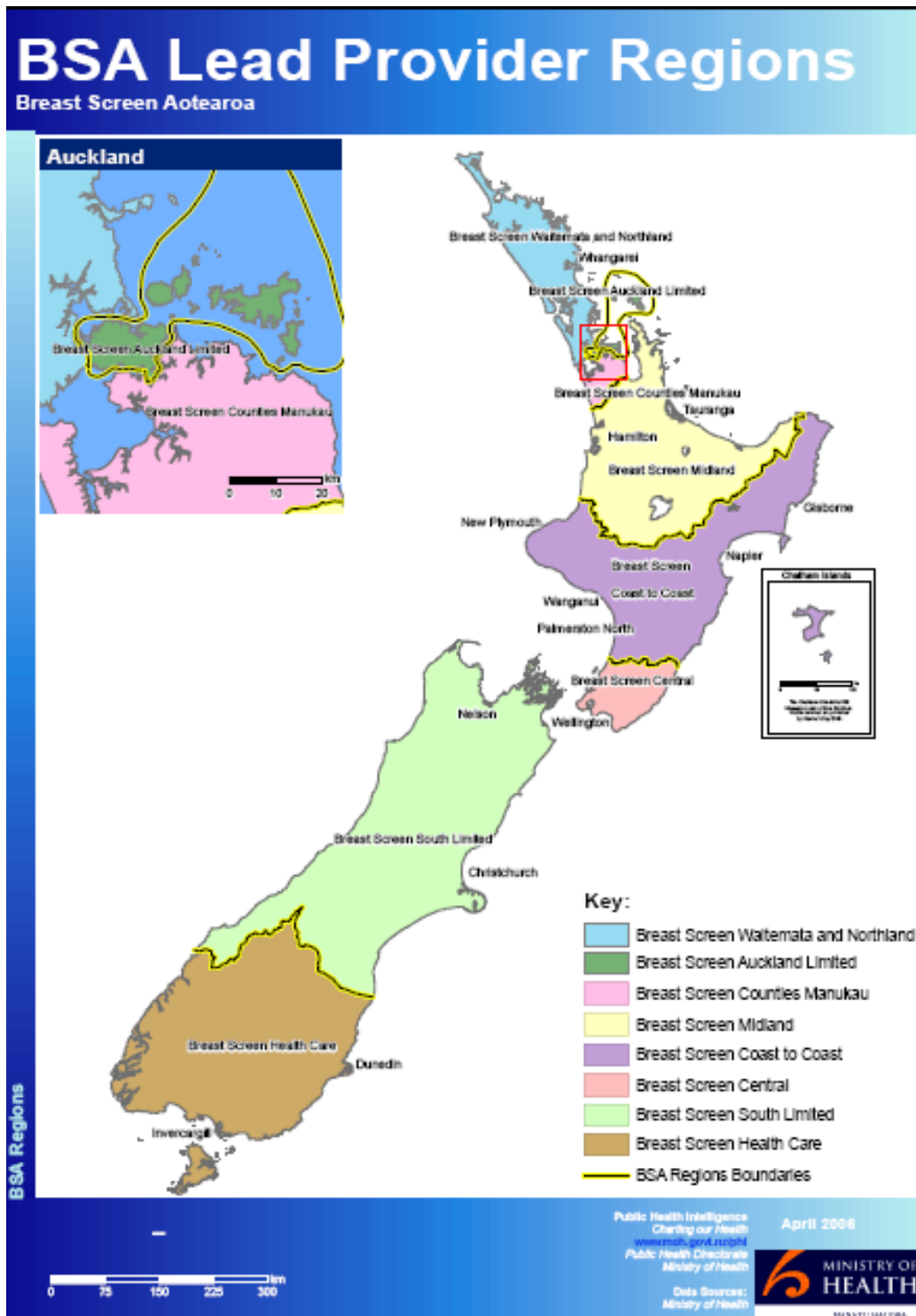
Figure xi: Distribution of Māori and non-Māori women aged 45–69 years by Lead Provider region, mid-year 2013



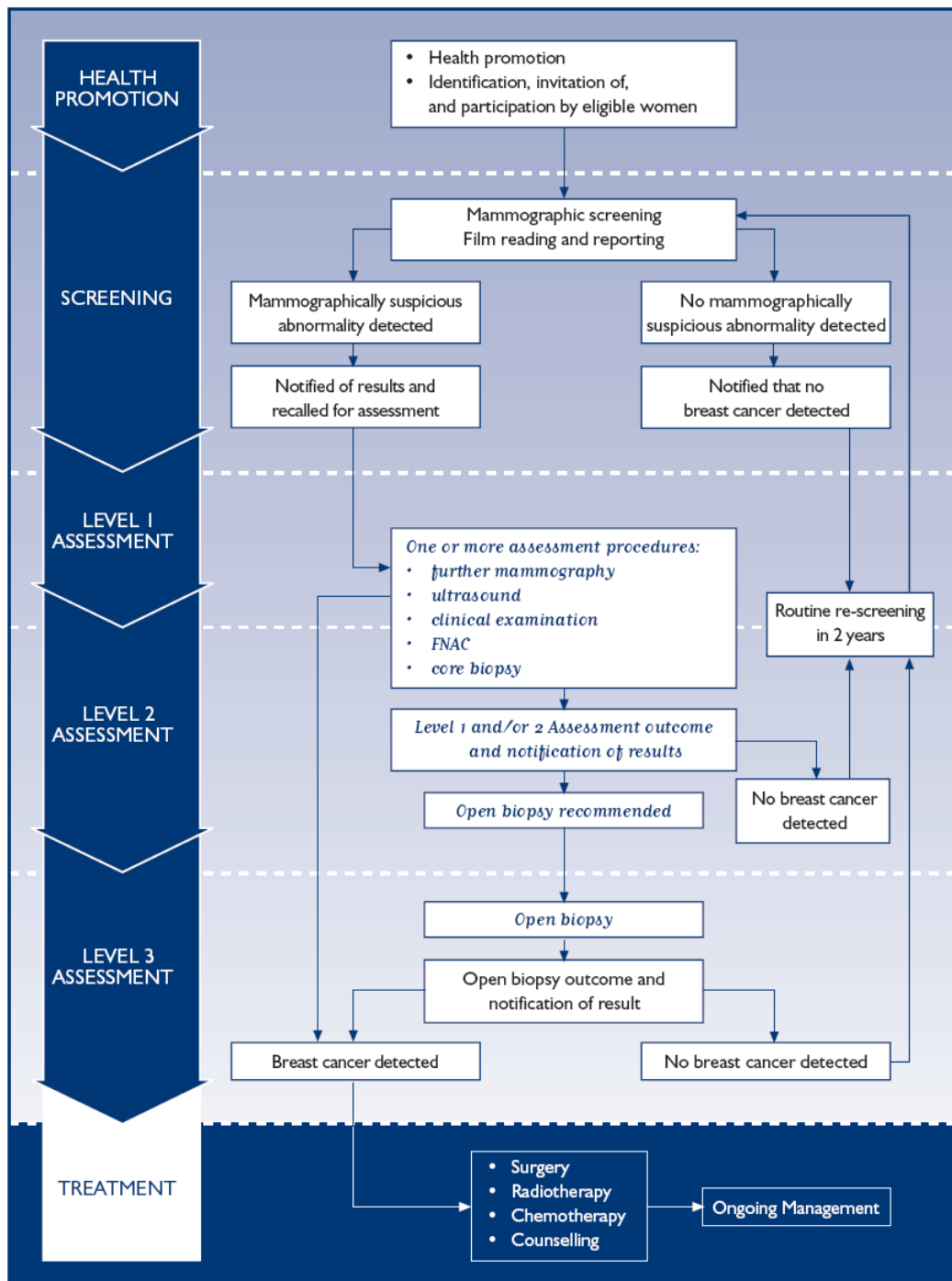
Source: Statistics NZ Population Estimates mid-year 2013, based on 2013 Census (provided by NSU)

Figure xi shows the national distribution of Māori and non-Māori women aged 45–69 years in the regions covered by each Lead Provider. This is the potential population for BreastScreen Aotearoa, and does not necessarily reflect the numbers enrolled in a provider. It is important to recognise the regions which include high proportions 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. The Midlands region covers a quarter of the eligible Māori population, and Coast to Coast covers a fifth. Waitemata and North has the third highest proportion of Māori women.

Figure xii: Map of BSA Lead Provider Regions



The Breast Screening pathway⁶
 Figure xiii: The Breast Screening Pathway



⁶ June 2008 – BreastScreen Aotearoa National Policy & Quality Standards VERSION 2

BSA monitoring process

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

Data are sent monthly from the eight BreastScreen Aotearoa Lead Providers (LPs) to the Information Directorate of the Ministry of Health. The data are checked at the Information Directorate, amalgamated into a single file, and sent to the National Screening Unit (NSU). The NSU runs further checks, then sends anonymised unit record data to the Eru Pōmare Māori Health Research Centre at the University of Otago, Wellington - the Independent Māori Monitoring Group (IMMG). The IMMG extracts the relevant data for Māori and non-Māori women, produces report tables, including proportions or rates, Māori:non-Māori ratios, calculates confidence intervals, time trends, Lead Provider summaries, and an analysis of data against national 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 Monitoring and Equity Group (MMEG) prior to a collective meeting, where it is presented and discussed. The MMEG provides consumer and provider context for the report and makes recommendations for programme improvement.

Māori Monitoring and Equity 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. In 2011 the group's title changed and they became the NSU's Māori Monitoring and Equity Group (MMEG). The members are:

- **Beth Quinlan** - Ngāti Whātua, Ngāpuhi, Primary Health Whānau Ora Nurse (Cervical Screening) Ki A Ora Ngatiwai Health Trust, Whangarei, Smear Taker Representative
- **Sandra Corbett** - Te Arawa, Kaiwhakahaere/Māori co-ordinator, National Cervical Screening Programme, Hawkes Bay DHB, Kaimahi Representative
- **Hinarata Campin** - Ngāti Porou, Ngāpuhi, Ngāti Wai, Health Promotion Co-ordinator, BreastScreen South, Kaimahi Representative, MMEG Deputy Chair
- **Barbara Greer** - Kāi Tahu, Kāti Māmoe, Ngāti Porou, Ngāti Apa, Member of Quality Improvement Committee (QIC), Māori Women's Welfare League Representative
- **Deborah Rowe** - Ngāi Tahu, Nurse Consultant/Lecturer, joint appointment between Auckland DHB and University of Auckland, Clinical Representative, MMEG Chairperson
- **Gary Thompson** - Ngāti Paoa Ngāti Haua – Midland Smokefree Programme Director – Midland DHB HealthShare Ltd
- **Whaea Jo Barnaby** - Ngāti Awa, Te Arawa, Manager Te Teko Hauora, Ex-NCSP Health Promoter/Smear Taker, Kaumātua representative
- **Pania Coote** – Ngāi Tahu, Ngāti Kauwhata, Ngāti Porou, Tumu Whakarae Representative, Southern DHB, District Manager Māori Health
- **Donna Cormack** - Kāi Tahu, Kāti Mamoe, University of Auckland/University of Otago

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 collected from the most recent screening episode, apart from the re-screening indicator. This means that some women who were coded as non-Māori in a previous report may be classified as Māori in this report.

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

In this report, time trends are presented for Māori and non-Māori women aged 50–69 years in graphic form using data for rolling two-year time periods at six-monthly intervals starting from July 2006. The shaded areas on the graph show the target range. Each graph shows the trend lines for Māori and non-Māori women served by the Lead Provider, and the indicator point estimates with confidence intervals for the 2-year period ending at that date. For example, the point estimates at June 2014 show the indicator values for the 2-year period ending 30 June 2014.

Trends for the figures were calculated using "locally estimated scatterplot smoothing" (LOESS) methods. These curves do not necessarily pass through all of the datapoints in a figure, but use information from adjacent and surrounding time periods ("local") to estimate the curve presented. Conceptually, these can be thought of as trend lines that are less strongly influenced by individual periods where there are particularly high or low levels of an indicator (relative to other years.) Both the individual provider and overall BSA trend lines displayed were calculated using these methods.

The trend lines are recalculated from the new data extractions for each new report. This means the trends for earlier years may look different to those presented in previous reports.

Population denominators

The eligible populations in these reports have been calculated from revised population projections for DHB resident populations in each Lead Provider district, provided by Statistics New Zealand in December 2014. The estimates are based on the 2013 New Zealand Census, assuming medium fertility, medium mortality, medium inter-ethnic mobility and medium migration.

The mid-year 2013 projected population was used. This is the same population that is used for all BSA quality and contract monitoring for the period July 2012 to June 2014. Denominator data is provided in Appendix A. These data are used to calculate coverage, 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.

All calculations were conducted in R3.01. All reported confidence intervals are 95% coverage confidence intervals.

Confidence intervals for the indicators (estimates for Māori and non-Māori) were calculated based on the binomial distribution (using the `binom.exact` function).

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, a footnote beneath each table states whether a ratio 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.

Confidence intervals for ratios were calculated using the binomial distribution⁷. For ratios with no women in either numerator, the Poisson distribution was used to construct confidence intervals using the `poisson.exact` function in R. This provides a wider confidence interval than would be expected using the binomial distribution (if it was possible to use it in these cases).

Targets

Indicators that have not met the BSA targets for women aged 50–69 years have been shaded in each table throughout this report. They are only shaded if the confidence interval does not include the target. Other than coverage, indicators for women aged 45–49 years have not been shaded because targets have not been set for this age group.

Cancer detection indicators

The rates of cancers detected are calculated as the number of cancers *per 1,000 screens* during the two-year or five-year period, rather than the number of cancers *per 1,000 women screened*. As some women have more than one screen within a two-year or five-year period, the rate is slightly lower than would be reported if calculated from the most recent screen only for each woman.

Changes to indicator calculations

Since the previous report, minor changes have been made to the way data is extracted or calculated for the following indicators:

- 1b3 Routine rescreening is now reported separately for women whose last screen was an initial screen, and for women whose last screen was a subsequent screen.
- Coverage has been calculated using revised population projections based on the 2013 Census.

⁷ Standard error for the ratios here is calculated on the log scale; resulting 95% Wald confidence intervals for the log(ratio) are then exponentiated for reporting as ratios.

$$se(\ln(RR)) = \sqrt{\frac{1}{Maori_{IND}} + \frac{1}{Maori_{TOTAL}} + \frac{1}{Non-Maori_{IND}} + \frac{1}{Non-Maori_{TOTAL}}}$$

where e.g. $Maori_{IND}$ is numerator for Māori (i.e. count of Māori women with indicator); and $Maori_{ALL}$ is denominator (i.e. count of Māori women both with and without indicator.)

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 xiv: Template for calculation of test validity

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

Source: Adapted from Grimes and Schulz (2002)⁸

Four measures of screening test validity are commonly used:

Sensitivity = $TP / (TP+FN)$

This is the probability of testing positive when the disease is present (out of those who have cancer, how many screened positive?)

Specificity = $TN / (TN+FP)$

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

Positive predictive value (PPV) = $TP / (TP+FP)$

The probability that an individual with a positive test actually has the disease (out of those who screen positive, how many have cancer?)

Negative predictive value (NPV) = $TN / (TN+FN)$

The probability that an individual with a negative test is truly disease free (out of those who screen negative, how many do not have cancer?)

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

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

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

Description:

The number and percentage of women in the target age group (50–69 years) who have had a screening mammogram in the programme.

Target:

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

Table 1a.1: Overall coverage of eligible women, 2 years (July 2012 to June 2014)

Lead provider	Number screened		Total eligible population*		Coverage %		Māori/non-Māori Ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori (95% CI)	Non-Māori (95% CI)	
45–49 years							
BSWN	2,155	17,226	3,395	24,200	63.5 (61.8, 65.1)	71.2 (70.6, 71.8)	0.89 (0.87, 0.92)
BSCM	1,708	11,819	2,415	15,555	70.7 (68.9, 72.5)	76.0 (75.3, 76.7)	0.93 (0.91, 0.96)
BSAL	758	11,164	1,175	15,370	64.5 (61.7, 67.2)	72.6 (71.9, 73.3)	0.89 (0.85, 0.93)
BSM	2,804	12,543	5,250	19,340	53.4 (52.0, 54.8)	64.9 (64.2, 65.5)	0.82 (0.80, 0.85)
BSCtoC	2,228	10,868	3,955	15,441	56.3 (54.8, 57.9)	70.4 (69.7, 71.1)	0.80 (0.78, 0.82)
BSC	1,151	10,763	1,925	16,140	59.8 (57.6, 62.0)	66.7 (66.0, 67.4)	0.90 (0.86, 0.93)
BSSL	1,559	22,409	1,915	25,724	81.4 (79.6, 83.1)	87.1 (86.7, 87.5)	0.93 (0.91, 0.96)
BSHC	535	7,717	865	10,030	61.8 (58.5, 65.1)	76.9 (76.1, 77.8)	0.80 (0.76, 0.85)
BSA Total	12,898	104,509	20,895	141,800	61.7 (61.1, 62.4)	73.7 (73.5, 73.9)	0.84 (0.83, 0.85)
50–69 years							
BSWN	5,964	53,337	8,995	76,540	66.3 (65.3, 67.3)	69.7 (69.4, 70.0)	0.95 (0.94, 0.97)
BSCM	4,000	32,717	5,655	45,510	70.7 (69.5, 71.9)	71.9 (71.5, 72.3)	0.98 (0.97, 1.00)
BSAL	1,933	30,343	3,060	43,700	63.2 (61.4, 64.9)	69.4 (69.0, 69.9)	0.91 (0.88, 0.94)
BSM	8,102	48,073	14,110	70,980	57.4 (56.6, 58.2)	67.7 (67.4, 68.1)	0.85 (0.84, 0.86)
BSCtoC	6,681	43,964	10,380	58,626	64.4 (63.4, 65.3)	75.0 (74.6, 75.3)	0.86 (0.85, 0.87)
BSC	3,079	35,733	4,675	49,536	65.9 (64.5, 67.2)	72.1 (71.7, 72.5)	0.91 (0.89, 0.93)
BSSL	3,494	71,625	4,455	88,336	78.4 (77.2, 79.6)	81.1 (80.8, 81.3)	0.97 (0.95, 0.98)
BSHC	1,179	27,564	1,870	35,320	63.0 (60.8, 65.2)	78.0 (77.6, 78.5)	0.81 (0.78, 0.84)
BSA Total	34,432	343,356	53,200	468,548	64.7 (64.3, 65.1)	73.3 (73.2, 73.4)	0.88 (0.88, 0.89)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Shaded boxes show confidence interval excludes target of >70%. Coverage is the number of women screened by the LP divided by the estimated population of that region but it is important to note that the women screened may not necessarily reside in the region.

* Eligible population is based on the mid-year 2013 population estimates

There was no improvement in the coverage of Māori women aged 50–69 years since the previous report, with coverage remaining at 65%, 12% below the non-Māori coverage of 73%. Māori participation in screening remained the same or decreased slightly for most LPs. BSCM remained on target and BSSL remained above target at 78%.

For Māori women aged 45–49 years, overall BSA coverage decreased slightly from 65% to 62%, 16% below the non-Māori coverage of 74%. BSCM and BSSL were the only LPS to achieve the target participation rate for Māori women in this age group.

Figure 1a.1a: Trends in biennial coverage for Māori and non-Māori women aged 45–49 years July 2006 to June 2014

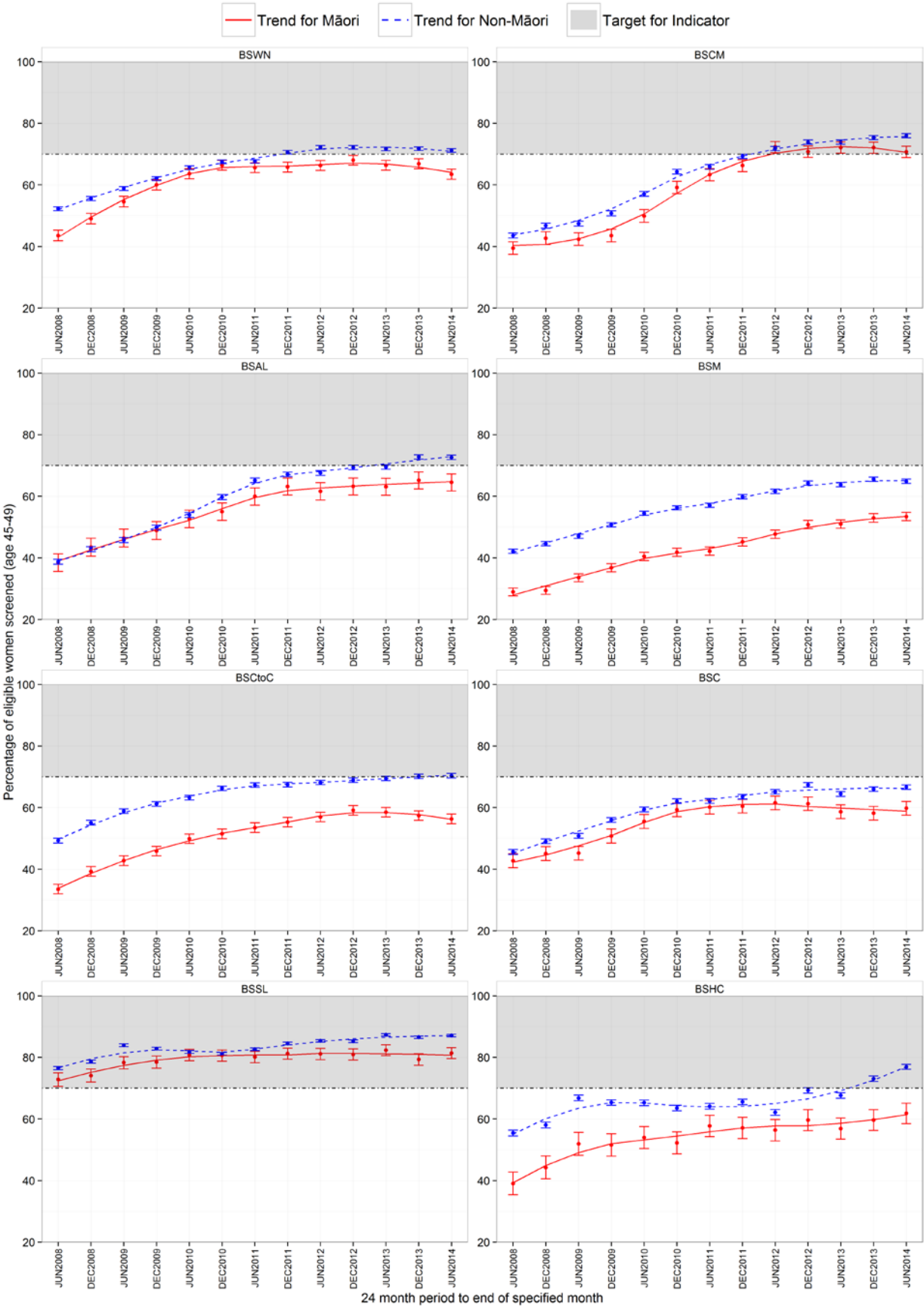
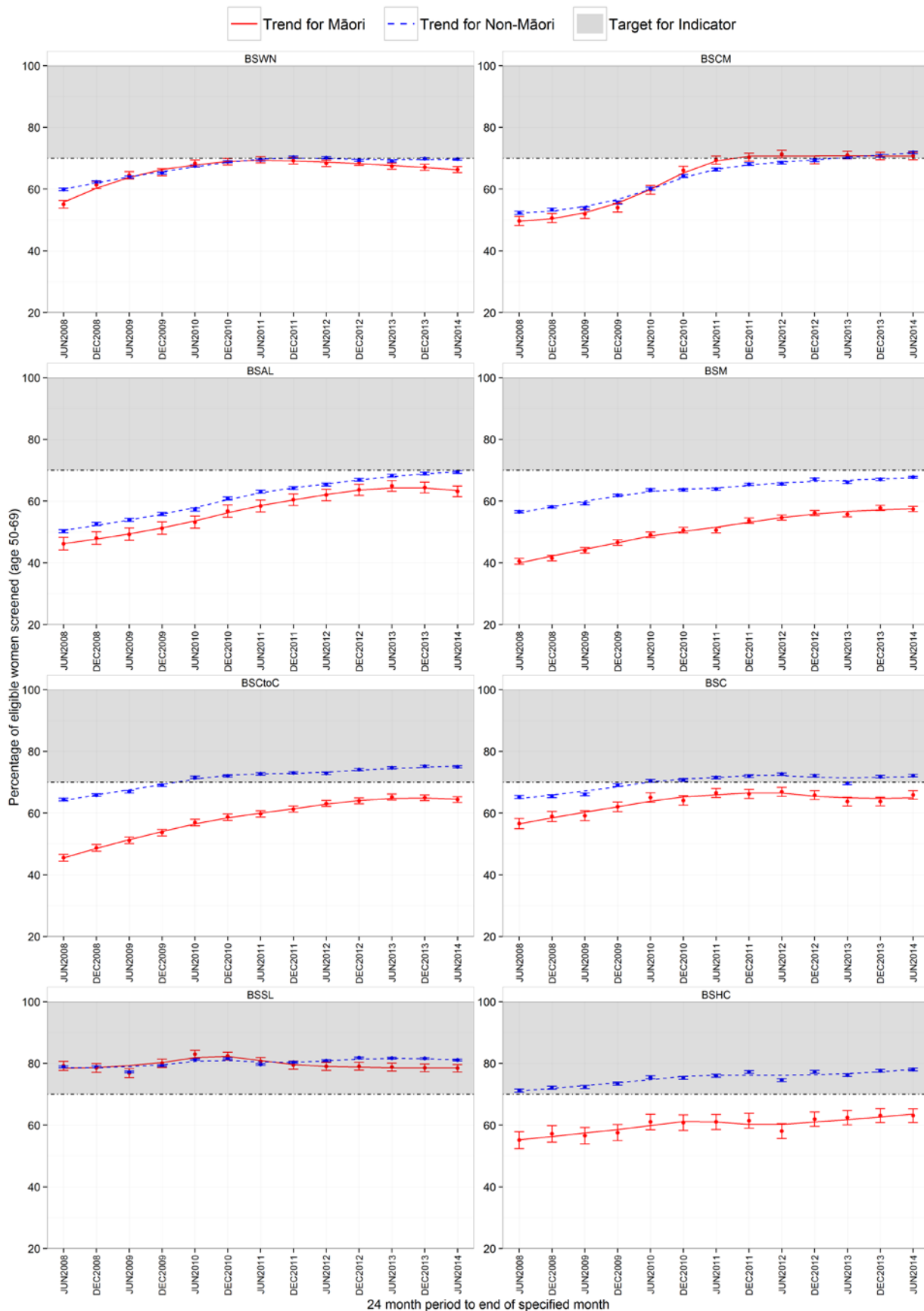


Figure 1a.1b: Trends in biennial coverage for Māori and non-Māori women aged 50–69 years July 2006 to June 2014



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

Table 1a.2a: Proportion of screens that are initial or subsequent screens, 2 years (July 2012 to June 2014), 45–49 years

Lead provider	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	976	7,764	2,155	17,226	45.3 (43.2, 47.4)	45.1 (44.3, 45.8)	1.00 (0.96, 1.06)
BSCM	866	5,536	1,708	11,819	50.7 (48.3, 53.1)	46.8 (45.9, 47.7)	<i>1.08 (1.03, 1.14)</i>
BSAL	358	5,214	758	11,164	47.2 (43.6, 50.9)	46.7 (45.8, 47.6)	1.01 (0.94, 1.09)
BSM	1,608	6,318	2,804	12,543	57.3 (55.5, 59.2)	50.4 (49.5, 51.2)	<i>1.14 (1.10, 1.18)</i>
BSCtoC	1,054	4,498	2,228	10,868	47.3 (45.2, 49.4)	41.4 (40.5, 42.3)	<i>1.14 (1.09, 1.20)</i>
BSC	570	5,115	1,151	10,763	49.5 (46.6, 52.5)	47.5 (46.6, 48.5)	1.04 (0.98, 1.11)
BSSL	699	8,907	1,559	22,409	44.8 (42.3, 47.3)	39.7 (39.1, 40.4)	<i>1.13 (1.07, 1.19)</i>
BSHC	298	4,067	535	7,717	55.7 (51.4, 60.0)	52.7 (51.6, 53.8)	1.06 (0.98, 1.14)
BSA Total	6,429	47,419	12,898	104,509	49.8 (49.0, 50.7)	45.4 (45.1, 45.7)	1.10 (1.08, 1.12)
Lead provider	Subsequent screens		Number of women screened		% of screens that were subsequent (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	1,179	9,462	2,155	17,226	54.7 (52.6, 56.8)	54.9 (54.2, 55.7)	1.00 (0.96, 1.04)
BSCM	842	6,283	1,708	11,819	49.3 (46.9, 51.7)	53.2 (52.3, 54.1)	0.93 (0.88, 0.98)
BSAL	400	5,950	758	11,164	52.8 (49.1, 56.4)	53.3 (52.4, 54.2)	0.99 (0.92, 1.06)
BSM	1,196	6,225	2,804	12,543	42.7 (40.8, 44.5)	49.6 (48.8, 50.5)	0.86 (0.82, 0.90)
BSCtoC	1,174	6,370	2,228	10,868	52.7 (50.6, 54.8)	58.6 (57.7, 59.5)	0.90 (0.86, 0.94)
BSC	581	5,648	1,151	10,763	50.5 (47.5, 53.4)	52.5 (51.5, 53.4)	0.96 (0.91, 1.02)
BSSL	860	13,502	1,559	22,409	55.2 (52.7, 57.7)	60.3 (59.6, 60.9)	0.92 (0.87, 0.96)
BSHC	237	3,650	535	7,717	44.3 (40.0, 48.6)	47.3 (46.2, 48.4)	0.94 (0.85, 1.03)
BSA Total	6,469	57,090	12,898	104,509	50.2 (49.3, 51.0)	54.6 (54.3, 54.9)	0.92 (0.90, 0.93)

Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among Māori women aged 45–49 years, half of those screened had their first screen with BSA, compared to 45% of non-Māori women in this age group. This ranged from 45% in BSWN and BSSL to 57% in BSM.

Table 1a.2b: Proportion of screens that are initial or subsequent screens, 2 years (July 2012 to June 2014), 50–69 years

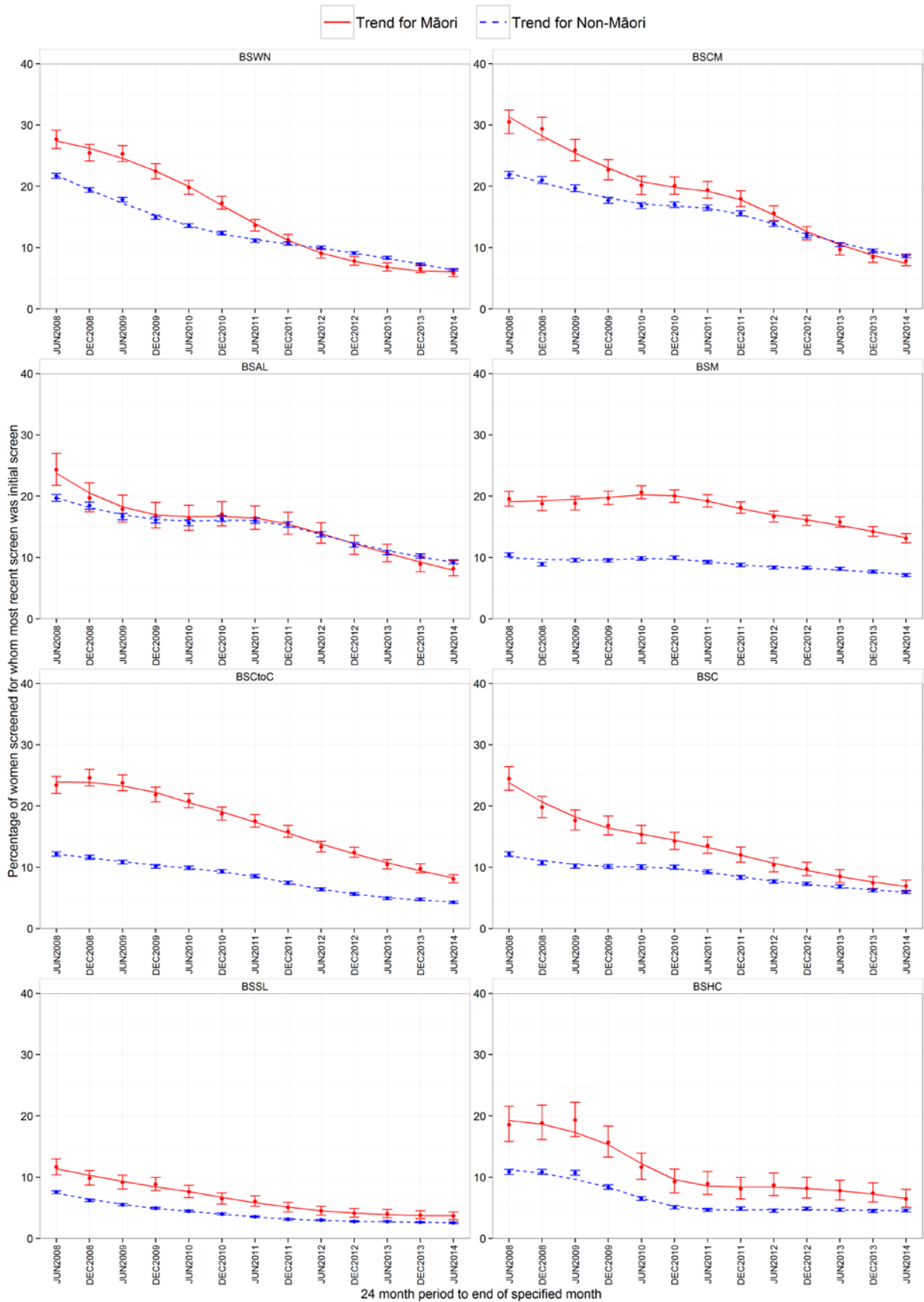
Lead provider	Initial screens		Number of women screened		% of screens that were initial (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	348	3,389	5,964	53,337	5.8 (5.3, 6.5)	6.4 (6.1, 6.6)	0.92 (0.83, 1.02)
BSCM	314	2,826	4,000	32,717	7.8 (7.0, 8.7)	8.6 (8.3, 8.9)	0.91 (0.81, 1.02)
BSAL	158	2,818	1,933	30,343	8.2 (7.0, 9.5)	9.3 (9.0, 9.6)	0.88 (0.75, 1.03)
BSM	1,064	3,425	8,102	48,073	13.1 (12.4, 13.9)	7.1 (6.9, 7.4)	1.84 (1.73, 1.97)
BSCtoC	541	1,888	6,681	43,964	8.1 (7.5, 8.8)	4.3 (4.1, 4.5)	1.89 (1.72, 2.07)
BSC	214	2,134	3,079	35,733	7.0 (6.1, 7.9)	6.0 (5.7, 6.2)	1.16 (1.02, 1.33)
BSSL	128	1,839	3,494	71,625	3.7 (3.1, 4.3)	2.6 (2.5, 2.7)	1.43 (1.20, 1.70)
BSHC	76	1,259	1,179	27,564	6.4 (5.1, 8.0)	4.6 (4.3, 4.8)	1.41 (1.13, 1.77)
BSA Total	2,843	19,578	34,432	343,356	8.3 (8.0, 8.6)	5.7 (5.6, 5.8)	1.45 (1.39, 1.50)
Lead provider	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	5,616	49,948	5,964	53,337	94.2 (93.5, 94.7)	93.6 (93.4, 93.9)	1.01 (1.00, 1.01)
BSCM	3,686	29,891	4,000	32,717	92.2 (91.3, 93.0)	91.4 (91.1, 91.7)	1.01 (1.00, 1.02)
BSAL	1,775	27,525	1,933	30,343	91.8 (90.5, 93.0)	90.7 (90.4, 91.0)	1.01 (1.00, 1.03)
BSM	7,038	44,648	8,102	48,073	86.9 (86.1, 87.6)	92.9 (92.6, 93.1)	0.94 (0.93, 0.94)
BSCtoC	6,140	42,076	6,681	43,964	91.9 (91.2, 92.5)	95.7 (95.5, 95.9)	0.96 (0.95, 0.97)
BSC	2,865	33,599	3,079	35,733	93.0 (92.1, 93.9)	94.0 (93.8, 94.3)	0.99 (0.98, 1.00)
BSSL	3,366	69,786	3,494	71,625	96.3 (95.7, 96.9)	97.4 (97.3, 97.5)	0.99 (0.98, 1.00)
BSHC	1,103	26,305	1,179	27,564	93.6 (92.0, 94.9)	95.4 (95.2, 95.7)	0.98 (0.97, 1.00)
BSA Total	31,589	323,778	34,432	343,356	91.7 (91.4, 92.0)	94.3 (94.2, 94.4)	0.97 (0.97, 0.98)

Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among women aged 50–69 years, only 8% of Māori women and 6% of non-Māori women had their first BSA screen in this biennium, a decrease from 10% and 7% in the previous report.

BSM had the highest proportion of screens that were initial among Māori women at 13% and BSSL had the lowest at 4%.

Figure 1a.2: Trends in the percentage of screens of Māori women aged 50–69 years that were initial



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

Table 1a.3a: Percentage of women screened by type of screening unit, 2 years (July 2012 to June 2014), 45–49 years

Lead provider	Number screened in fixed unit		Total number screened		% screened in <u>fixed unit</u> (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	1,312	13,252	2,155	17,226	60.9 (58.8, 62.9)	76.9 (76.3, 77.6)	<i>0.79 (0.76, 0.82)</i>
BSCM	1,380	9,706	1,708	11,819	80.8 (78.8, 82.6)	82.1 (81.4, 82.8)	0.98 (0.96, 1.01)
BSAL	456	8,406	758	11,164	60.2 (56.6, 63.7)	75.3 (74.5, 76.1)	<i>0.80 (0.75, 0.85)</i>
BSM	2,015	9,385	2,804	12,543	71.9 (70.2, 73.5)	74.8 (74.1, 75.6)	0.96 (0.94, 0.99)
BSCtoC	1,786	9,792	2,228	10,868	80.2 (78.4, 81.8)	90.1 (89.5, 90.7)	<i>0.89 (0.87, 0.91)</i>
BSC	653	6,401	1,151	10,763	56.7 (53.8, 59.6)	59.5 (58.5, 60.4)	0.95 (0.91, 1.01)
BSSL	1,448	21,110	1,559	22,409	92.9 (91.5, 94.1)	94.2 (93.9, 94.5)	0.99 (0.97, 1.00)
BSHC	373	5,139	535	7,717	69.7 (65.6, 73.6)	66.6 (65.5, 67.6)	1.05 (0.99, 1.11)
BSA Total	9,423	83,191	12,898	104,509	73.1 (72.3, 73.8)	79.6 (79.4, 79.8)	0.92 (0.91, 0.93)
Lead provider	Number screened in mobile unit		Total number screened		% screened in <u>mobile unit</u> (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	843	3,974	2,155	17,226	39.1 (37.1, 41.2)	23.1 (22.4, 23.7)	<i>1.70 (1.60, 1.80)</i>
BSCM	328	2,113	1,708	11,819	19.2 (17.4, 21.2)	17.9 (17.2, 18.6)	1.07 (0.97, 1.19)
BSAL	302	2,758	758	11,164	39.8 (36.3, 43.4)	24.7 (23.9, 25.5)	<i>1.61 (1.47, 1.77)</i>
BSM	789	3,158	2,804	12,543	28.1 (26.5, 29.8)	25.2 (24.4, 25.9)	1.12 (1.05, 1.19)
BSCtoC	442	1,076	2,228	10,868	19.8 (18.2, 21.6)	9.9 (9.3, 10.5)	<i>2.00 (1.81, 2.22)</i>
BSC	498	4,362	1,151	10,763	43.3 (40.4, 46.2)	40.5 (39.6, 41.5)	1.07 (1.00, 1.15)
BSSL	111	1,299	1,559	22,409	7.1 (5.9, 8.5)	5.8 (5.5, 6.1)	<i>1.23 (1.02, 1.48)</i>
BSHC	162	2,578	535	7,717	30.3 (26.4, 34.4)	33.4 (32.4, 34.5)	0.91 (0.79, 1.04)
BSA Total	3,475	21,318	12,898	104,509	26.9 (26.2, 27.7)	20.4 (20.2, 20.6)	1.32 (1.28, 1.36)

Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among Māori women aged 45–49 years, 73% were screened in mobile units, a small increase from 70% in the previous biennium. Over a quarter of Māori women (27%) were screened in mobile units compared to a fifth of non-Māori women.

Lead Providers with the highest proportions of Māori women screened in mobile units were BSC (43%), BSAL (40%) and BSWN (39%). BSSL had the lowest proportion at 7%.

Table 1a.3b: Percentage of women screened by type of screening unit, 2 years (July 2012 to June 2014), 50–69 years

Lead provider	Number screened in fixed unit		Total number screened		% screened in fixed unit (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	3,357	39,390	5,964	53,337	56.3 (55.0, 57.6)	73.9 (73.5, 74.2)	<i>0.76 (0.75, 0.78)</i>
BSCM	3,067	26,144	4,000	32,717	76.7 (75.3, 78.0)	79.9 (79.5, 80.3)	0.96 (0.94, 0.98)
BSAL	1,190	23,241	1,933	30,343	61.6 (59.4, 63.7)	76.6 (76.1, 77.1)	<i>0.80 (0.78, 0.83)</i>
BSM	5,465	34,450	8,102	48,073	67.5 (66.4, 68.5)	71.7 (71.3, 72.1)	0.94 (0.93, 0.96)
BSCtoC	5,078	38,535	6,681	43,964	76.0 (75.0, 77.0)	87.7 (87.3, 88.0)	<i>0.87 (0.86, 0.88)</i>
BSC	1,803	21,091	3,079	35,733	58.6 (56.8, 60.3)	59.0 (58.5, 59.5)	0.99 (0.96, 1.02)
BSSL	3,151	66,255	3,494	71,625	90.2 (89.1, 91.2)	92.5 (92.3, 92.7)	0.98 (0.96, 0.99)
BSHC	798	17,637	1,179	27,564	67.7 (64.9, 70.3)	64.0 (63.4, 64.6)	1.06 (1.02, 1.10)
BSA Total	23,909	266,743	34,432	343,356	69.4 (68.9, 69.9)	77.7 (77.5, 77.8)	0.89 (0.89, 0.90)
Lead provider	Number screened in mobile unit		Total number screened		% screened in mobile unit (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
BSWN	2,607	13,947	5,964	53,337	43.7 (42.4, 45.0)	26.1 (25.8, 26.5)	<i>1.67 (1.62, 1.73)</i>
BSCM	933	6,573	4,000	32,717	23.3 (22.0, 24.7)	20.1 (19.7, 20.5)	1.16 (1.09, 1.23)
BSAL	743	7,102	1,933	30,343	38.4 (36.3, 40.6)	23.4 (22.9, 23.9)	<i>1.64 (1.55, 1.74)</i>
BSM	2,637	13,623	8,102	48,073	32.5 (31.5, 33.6)	28.3 (27.9, 28.7)	1.15 (1.11, 1.19)
BSCtoC	1,603	5,429	6,681	43,964	24.0 (23.0, 25.0)	12.3 (12.0, 12.7)	<i>1.94 (1.85, 2.04)</i>
BSC	1,276	14,642	3,079	35,733	41.4 (39.7, 43.2)	41.0 (40.5, 41.5)	1.01 (0.97, 1.06)
BSSL	343	5,370	3,494	71,625	9.8 (8.8, 10.9)	7.5 (7.3, 7.7)	1.31 (1.18, 1.45)
BSHC	381	9,927	1,179	27,564	32.3 (29.7, 35.1)	36.0 (35.4, 36.6)	0.90 (0.83, 0.98)
BSA Total	10,523	76,613	34,432	343,356	30.6 (30.1, 31.1)	22.3 (22.2, 22.5)	1.37 (1.35, 1.39)

Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among Māori women aged 50–69 years, over two-thirds (69%) were screened in fixed units. A higher proportion of Māori women were screened in mobile units (31%) than non-Māori women (22%). BSWN (44%) and BSC (41%) had the highest proportions of Māori women screened in mobile units. Non-Māori women were less likely than Māori to be screened in mobile units in most LPs apart from BSC and BSHC.

1a.4 Age-specific coverage, women aged 45–69 years

Table 1a.4: Coverage by age group, 2 years (July 2012 to June 2014)

Lead provider	Number of women screened in last 2 years		Eligible population		% coverage in last 2 years (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
Age 45–49 years							
BSWN	2,155	17,226	3,395	24,200	63.5 (61.8, 65.1)	71.2 (70.6, 71.8)	0.89 (0.87, 0.92)
BSCM	1,708	11,819	2,415	15,555	70.7 (68.9, 72.5)	76.0 (75.3, 76.7)	0.93 (0.91, 0.96)
BSAL	758	11,164	1,175	15,370	64.5 (61.7, 67.2)	72.6 (71.9, 73.3)	0.89 (0.85, 0.93)
BSM	2,804	12,543	5,250	19,340	53.4 (52.0, 54.8)	64.9 (64.2, 65.5)	0.82 (0.80, 0.85)
BSCtoC	2,228	10,868	3,955	15,441	56.3 (54.8, 57.9)	70.4 (69.7, 71.1)	0.80 (0.78, 0.82)
BSC	1,151	10,763	1,925	16,140	59.8 (57.6, 62.0)	66.7 (66.0, 67.4)	0.90 (0.86, 0.93)
BSSL	1,559	22,409	1,915	25,724	81.4 (79.6, 83.1)	87.1 (86.7, 87.5)	0.94 (0.91, 0.96)
BSHC	535	7,717	865	10,030	61.8 (58.5, 65.1)	76.9 (76.1, 77.8)	0.80 (0.76, 0.85)
BSA Total	12,898	104,509	20,895	141,800	61.7 (61.1, 62.4)	73.7 (73.5, 73.9)	0.84 (0.83, 0.85)
Age 50–54 years							
BSWN	2,174	15,793	3,370	22,990	64.5 (62.9, 66.1)	68.7 (68.1, 69.3)	0.94 (0.92, 0.96)
BSCM	1,434	10,415	2,080	14,510	68.9 (66.9, 70.9)	71.8 (71.0, 72.5)	0.96 (0.93, 0.99)
BSAL	743	9,774	1,165	13,995	63.8 (60.9, 66.5)	69.8 (69.1, 70.6)	0.91 (0.87, 0.96)
BSM	2,742	12,991	5,055	20,065	54.2 (52.9, 55.6)	64.7 (64.1, 65.4)	0.84 (0.82, 0.86)
BSCtoC	2,350	12,208	3,700	16,741	63.5 (61.9, 65.1)	72.9 (72.2, 73.6)	0.87 (0.85, 0.89)
BSC	1,152	10,728	1,805	15,410	63.8 (61.6, 66.0)	69.6 (68.9, 70.3)	0.92 (0.88, 0.95)
BSSL	1,262	20,274	1,695	26,093	74.5 (72.3, 76.5)	77.7 (77.2, 78.2)	0.96 (0.93, 0.99)
BSHC	441	8,143	725	10,615	60.8 (57.2, 64.4)	76.7 (75.9, 77.5)	0.79 (0.75, 0.84)
BSA Total	12,298	100,326	19,595	140,419	62.8 (62.1, 63.4)	71.4 (71.2, 71.7)	0.88 (0.87, 0.89)
Age 55–59 years							
BSWN	1,600	13,705	2,460	20,000	65.0 (63.1, 66.9)	68.5 (67.9, 69.2)	0.95 (0.92, 0.98)
BSCM	1,134	8,564	1,605	12,075	70.7 (68.4, 72.9)	70.9 (70.1, 71.7)	1.00 (0.96, 1.03)
BSAL	537	8,291	870	12,045	61.7 (58.4, 65.0)	68.8 (68.0, 69.7)	0.90 (0.85, 0.95)
BSM	2,333	12,076	4,030	18,300	57.9 (56.3, 59.4)	66.0 (65.3, 66.7)	0.88 (0.85, 0.9)
BSCtoC	1,777	11,257	2,875	15,168	61.8 (60.0, 63.6)	74.2 (73.5, 74.9)	0.83 (0.81, 0.86)
BSC	852	9,254	1,290	13,003	66.0 (63.4, 68.6)	71.2 (70.4, 71.9)	0.93 (0.89, 0.97)
BSSL	973	19,386	1,195	23,083	81.4 (79.1, 83.6)	84.0 (83.5, 84.5)	0.97 (0.94, 0.10)
BSHC	327	7,261	510	9,260	64.1 (59.8, 68.3)	78.4 (77.6, 79.2)	0.82 (0.77, 0.87)
BSA Total	9,533	89,794	14,835	122,934	64.3 (63.5, 65.0)	73.0 (72.8, 73.3)	0.88 (0.87, 0.89)
Age 60–64 years							
BSWN	1,286	12,670	1,875	18,045	68.6 (66.4, 70.7)	70.2 (69.5, 70.9)	0.98 (0.95, 1.01)
BSCM	866	7,588	1,195	10,510	72.5 (69.8, 75.0)	72.2 (71.3, 73.1)	1.00 (0.97, 1.04)
BSAL	398	6,886	620	10,060	64.2 (60.3, 68.0)	68.4 (67.5, 69.4)	0.94 (0.88, 0.10)
BSM	1,819	11,797	3,000	17,165	60.6 (58.9, 62.4)	68.7 (68.0, 69.4)	0.88 (0.86, 0.91)
BSCtoC	1,494	10,836	2,225	14,358	67.1 (65.2, 69.1)	75.5 (74.8, 76.2)	0.89 (0.86, 0.92)
BSC	648	8,445	950	11,483	68.2 (65.1, 71.2)	73.5 (72.7, 74.3)	0.93 (0.89, 0.97)
BSSL	723	17,095	925	21,349	78.2 (75.4, 80.8)	80.1 (79.5, 80.6)	0.98 (0.94, 1.01)
BSHC	250	6,538	380	8,370	65.8 (60.8, 70.6)	78.1 (77.2, 79.0)	0.84 (0.78, 0.91)
BSA Total	7,484	81,855	11,170	111,340	67.0 (66.1, 67.9)	73.5 (73.3, 73.8)	0.91 (0.90, 0.92)

Lead provider	Number of women screened in last 2 years		Eligible population		% coverage in last 2 years (95% CI)		Māori/non-Māori ratio (95% CI)
	Māori	Non-Māori	Māori	Non-Māori	Māori	Non-Māori	
Age 65–69 years							
BSWN	904	11,169	1,290	15,505	70.1 (67.5, 72.6)	72.0 (71.3, 72.7)	0.97 (0.94, 1.01)
BSCM	566	6,150	775	8,415	73.0 (69.8, 76.1)	73.1 (72.1, 74.0)	1.00 (0.96, 1.05)
BSAL	255	5,392	405	7,600	63.0 (58.1, 67.7)	70.9 (69.9, 72.0)	<i>0.89 (0.82, 0.96)</i>
BSM	1,208	11,209	2,025	15,450	59.7 (57.5, 61.8)	72.6 (71.8, 73.3)	0.82 (0.79, 0.85)
BSCtoC	1,060	9,663	1,580	12,359	67.1 (64.7, 69.4)	78.2 (77.4, 78.9)	<i>0.86 (0.83, 0.89)</i>
BSC	427	7,306	630	9,640	67.8 (64.0, 71.4)	75.8 (74.9, 76.6)	0.89 (0.85, 0.95)
BSSL	536	14,870	640	17,811	83.8 (80.7, 86.5)	83.5 (82.9, 84.0)	1.003 (0.97, 1.04)
BSHC	161	5,622	255	7,075	63.1 (56.9, 69.1)	79.5 (78.5, 80.4)	0.80 (0.72, 0.87)
BSA Total	5,117	71,381	7,600	93,855	67.3 (66.3, 68.4)	76.1 (75.8, 76.3)	0.89 (0.87, 0.90)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Shaded boxes show confidence interval excludes target of >70%.

* Eligible population is based on the mid-year 2013 population estimates

Māori participation in breast screening generally increased with age, with total BSA coverage increasing from 62% among those aged 45–49 years to 67% among those aged 65–69 years.

There was no significant increase in coverage of Māori women in any age group for BSA overall, while there were small increases in most age groups among non-Māori women. The gap between Māori and non-Māori coverage widened in most age groups.

1b3 Routine re-screening

Description:

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

Target for women aged 50–69 years:

>85% of women who are eligible for rescreen are re-screened within 27 months

Table 1b.3: Percentage of women aged 45–49 years eligible for re-screen who are re-screened within 27 months, 2 years (previous screen during July 2010 to June 2012)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratios (95% CI)
	Women rescreened within 27 months of previous screen	Number of women eligible for re-screen	% of eligible women rescreened within 27 months (95% CI)	Women rescreened within 27 months of previous screen	Number of women eligible for re-screen	% of eligible women rescreened within 27 months (95% CI)	
Previous screen was initial							
BSWN	754	1,156	65.2(62.4, 68.0)	6,178	8,716	70.9(69.9, 71.8)	<i>0.92(0.88, 0.96)</i>
BSCM	655	1,083	60.5(57.5, 63.4)	4,612	6,290	73.3(72.2, 74.4)	<i>0.82(0.78, 0.87)</i>
BSAL	312	397	78.6(74.2, 82.5)	4,700	5,718	82.2(81.2, 83.2)	0.96(0.91, 1.01)
BSM	889	1,498	59.3(56.8, 61.8)	4,092	6,414	63.8(62.6, 65.0)	<i>0.93(0.89, 0.97)</i>
BSCtoC	950	1,201	79.1(76.7, 81.4)	4,500	5,030	89.5(88.6, 90.3)	<i>0.88(0.86, 0.91)</i>
BSC	429	591	72.6(68.8, 76.1)	4,212	5,153	81.7(80.7, 82.8)	<i>0.89(0.84, 0.93)</i>
BSSL	520	646	80.5(77.2, 83.5)	8,025	9,143	87.8(87.1, 88.4)	<i>0.92(0.88, 0.95)</i>
BSHC	182	230	79.1(73.3, 84.2)	2,429	2,775	87.5(86.2, 88.7)	<i>0.90(0.84, 0.97)</i>
Total BSA	4,691	6,802	69.0(67.9, 70.1)	38,748	49,239	78.7(78.3, 79.1)	<i>0.88(0.86, 0.89)</i>
Previous screen was subsequent							
BSWN	894	1,146	78.0(75.5, 80.4)	7,143	8,918	80.1(79.3, 80.9)	0.97(0.94, 1.01)
BSCM	474	631	75.1(71.6, 78.4)	4,269	4,963	86.0(85.0, 87.0)	<i>0.87(0.83, 0.91)</i>
BSAL	308	355	86.8(82.8, 90.1)	4,417	4,973	88.8(87.9, 89.7)	0.98(0.94, 1.02)
BSM	763	1,047	72.9(70.1, 75.5)	4,301	5,915	72.7(71.6, 73.8)	1.00(0.96, 1.04)
BSCtoC	944	1,094	86.3(84.1, 88.3)	5,775	6,229	92.7(92.0, 93.3)	<i>0.93(0.91, 0.95)</i>
BSC	450	589	76.4(72.8, 79.8)	4,631	5,463	84.8(83.8, 85.7)	<i>0.90(0.86, 0.94)</i>
BSSL	769	874	88.0(85.6, 90.1)	13,013	14,289	91.1(90.6, 91.5)	<i>0.97(0.94, 0.99)</i>
BSHC	196	227	86.3(81.2, 90.5)	3,434	3,764	91.2(90.3, 92.1)	0.95(0.90, 1.00)
Total BSA	4,798	5,963	80.5(79.4, 81.5)	46,983	54,514	86.2(85.9, 86.5)	<i>0.93(0.92, 0.95)</i>

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among women aged 45–49 years, women whose previous screen was a subsequent screen were more likely than those who had only had an initial screen to be rescreened within 27 months.

Māori women had a lower chance of being rescreened within 27 months than non-Māori women whether the previous screen was initial or subsequent.

Table 1b.3: Percentage of women aged 50–69 years eligible for re-screen who are re-screened within 27 months, 2 years (previous screen during July 2010 to June 2012)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratios (95% CI)
	Women rescreened within 27 months of previous screen	Number of women eligible for re-screen	% of eligible women rescreened within 27 months (95% CI)	Women rescreened within 27 months of previous screen	Number of women eligible for re-screen	% of eligible women rescreened within 27 months (95% CI)	
Previous screen was initial							
BSWN	293	480	61.0(56.5, 65.4)	3,033	4,852	62.5(61.1, 63.9)	0.98(0.91, 1.05)
BSCM	289	561	51.5(47.3, 55.7)	2,639	3,982	66.3(64.8, 67.7)	0.78(0.72, 0.84)
BSAL	147	228	64.5(57.9, 70.7)	2,907	3,842	75.7(74.3, 77.0)	0.85(0.77, 0.94)
BSM	555	1,111	50.0(47.0, 52.9)	2,025	3,609	56.1(54.5, 57.7)	0.89(0.83, 0.95)
BSCtoC	567	764	74.2(71.0, 77.3)	2,174	2,541	85.6(84.1, 86.9)	0.87(0.83, 0.91)
BSC	190	283	67.1(61.3, 72.6)	1,907	2,550	74.8(73.1, 76.5)	0.90(0.82, 0.98)
BSSL	97	137	70.8(62.4, 78.3)	1,603	2,047	78.3(76.5, 80.1)	0.90(0.81, 1.01)
BSHC	55	81	67.9(56.6, 77.8)	873	1,098	79.5(77.0, 81.9)	0.85(0.73, 0.99)
Total BSA	2,193	3,645	60.2(58.6, 61.8)	17,161	24,521	70.0(69.4, 70.6)	0.86(0.84, 0.88)
Previous screen was subsequent							
BSWN	3,708	4,527	81.9(80.8, 83.0)	34,219	40,888	83.7(83.3, 84.0)	0.98(0.96, 0.99)
BSCM	2,211	2,786	79.4(77.8, 80.9)	19,639	22,512	87.2(86.8, 87.7)	0.91(0.89, 0.93)
BSAL	1,123	1,310	85.7(83.7, 87.6)	18,370	20,419	90.0(89.5, 90.4)	0.95(0.93, 0.97)
BSM	3,978	5,202	76.5(75.3, 77.6)	27,356	36,001	76.0(75.5, 76.4)	1.01(0.99, 1.02)
BSCtoC	4,062	4,635	87.6(86.7, 88.6)	32,071	34,194	93.8(93.5, 94.0)	0.93(0.92, 0.94)
BSC	1,829	2,307	79.3(77.6, 80.9)	24,587	28,391	86.6(86.2, 87.0)	0.92(0.90, 0.94)
BSSL	2,417	2,713	89.1(87.9, 90.2)	55,722	60,172	92.6(92.4, 92.8)	0.96(0.95, 0.97)
BSHC	717	818	87.7(85.2, 89.8)	19,860	21,550	92.2(91.8, 92.5)	0.95(0.93, 0.98)
Total BSA	20,045	24,298	82.5(82.0, 83.0)	231,824	264,127	87.8(87.6, 87.9)	0.94(0.93, 0.95)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Shaded boxes show confidence interval excludes target of >85%.

Among Māori women aged 50–69 years, the proportion rescreened within 27 months was considerably lower among those whose previous screen was an initial screen (60%) compared to those whose previous screen was a subsequent screen (83%).

The target value of 85% was not met by any LP for Māori women having an initial screen. The LP with the highest proportion was BSCtoC at 74%. BSM and BSCM had the lowest proportions at 50% and 52% respectively.

Māori women had a lower rate of rescreening within 27 months than non-Māori among both groups – those whose previous screen was initial and those whose previous screen was subsequent. However, the gap between Māori and non-Māori was greater for the initial screens – with an absolute gap of 10 percentage points and a relative gap of 14%, while the gap for subsequent screens was five percentage points (absolute) and 6% (relative).

Around half the LPs achieved the target for Māori women whose previous screen was a subsequent one, with all LPs consistently achieving higher rates for subsequent screens than for initial screens.

Timely rescreening rates for initial screens appear to be decreasing among a number of LPs. Some LPs are also showing decreasing trends for rescreens after subsequent screens.

Figure 1b.3a: Trends in percentage of eligible Māori and non-Māori women aged 50–69 years routinely rescreened within 27 months of an initial screen

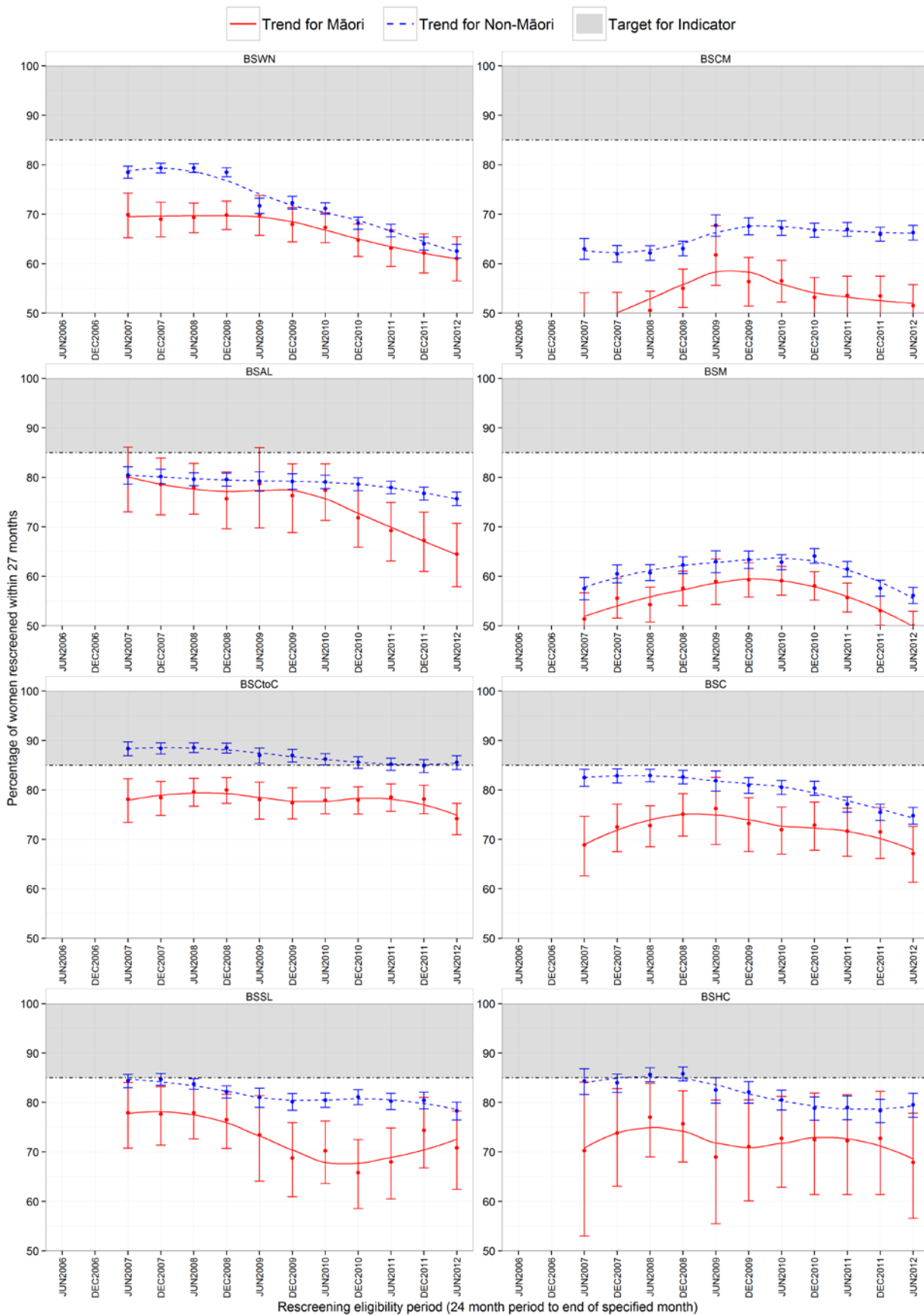
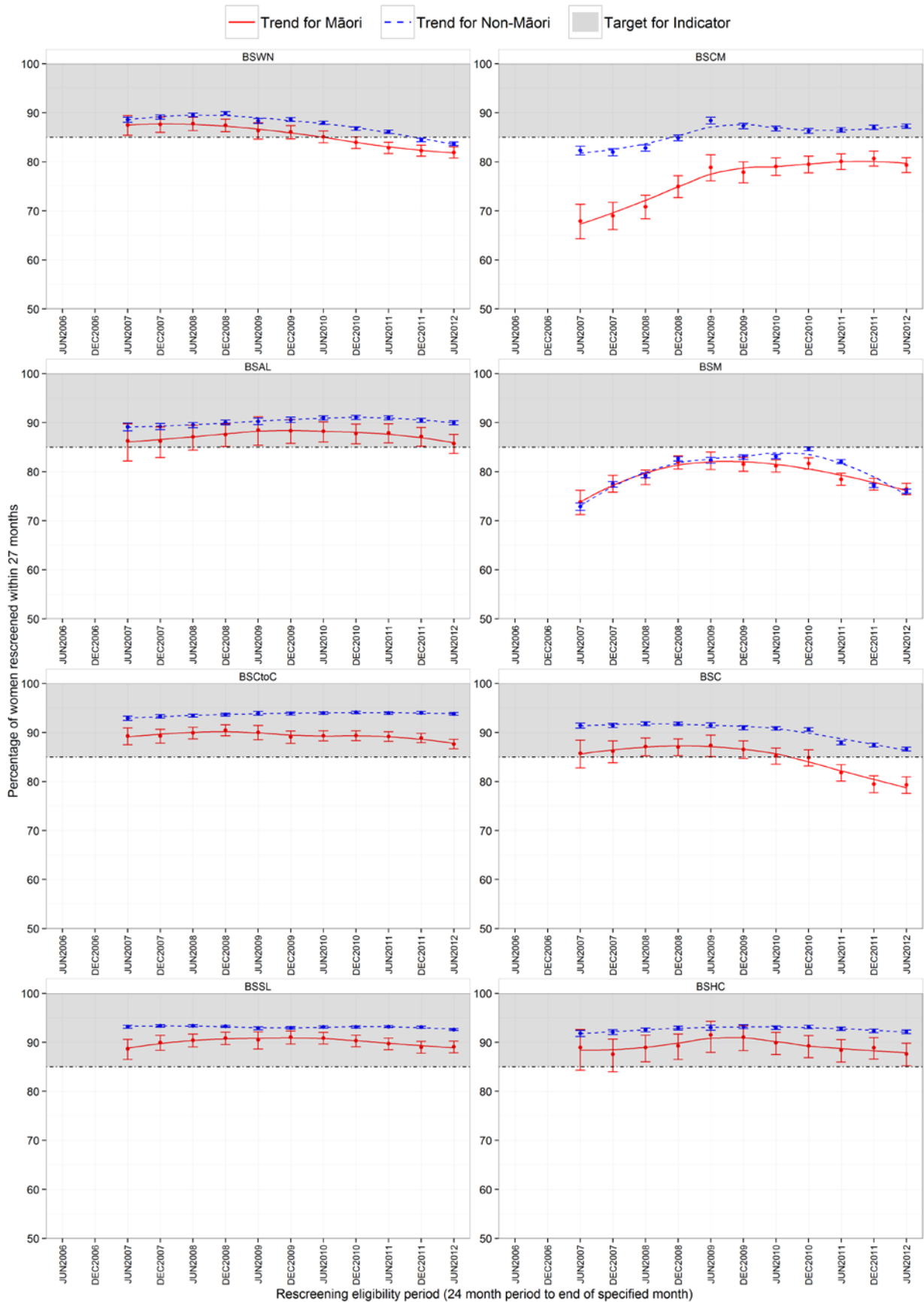


Figure 1b.3b: Trends in percentage of eligible Māori and non-Māori women aged 50–69 years routinely rescreened within 27 months of a subsequent screen



SECTION 2: PROVISION OF HIGH QUALITY SCREENING AND ASSESSMENT

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

Description:

The percentage of women screened who have no more than four images taken.

Target for women aged 50–69 years:

>80% of women screened have four or less images taken.

Table 2a.1: Percentage of women aged 45–49 years having 4 images or fewer by type of screening unit, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Women having 4 images or fewer	Number of women screened	% of women screened who had 4 images or fewer (95% CI)	Women having 4 images or fewer	Number of women screened	% of women screened who had 4 images or fewer (95% CI)	
Fixed Unit							
BSWN	1,153	1,312	87.9 (86.0, 89.6)	11,966	13,252	90.3(89.8, 90.8)	0.97(0.95, 0.99)
BSCM	1,081	1,380	78.3 (76.1, 80.5)	8,182	9,706	84.3(83.6, 85.0)	0.93(0.90, 0.96)
BSAL	378	456	82.9 (79.1, 86.2)	7,158	8,406	85.2(84.4, 85.9)	0.97(0.93, 1.02)
BSM	1,691	2,015	83.9 (82.2, 85.5)	8,395	9,385	89.5(88.8, 90.1)	0.94(0.92, 0.96)
BSCtoC	1,497	1,786	83.8 (82.0, 85.5)	8,937	9,792	91.3(90.7, 91.8)	0.92(0.90, 0.94)
BSC	537	653	82.2 (79.1, 85.1)	5,547	6,401	86.7(85.8, 87.5)	0.95(0.91, 0.98)
BSSL	1,230	1,448	84.9 (83.0, 86.7)	18,479	21,110	87.5(87.1, 88.0)	0.97(0.95, 0.99)
BSHC	318	373	85.3 (81.2, 88.7)	4,523	5,139	88.0(87.1, 88.9)	0.97(0.93, 1.01)
Total BSA	7,885	9,423	83.7 (82.9, 84.4)	73,187	83,191	88.0(87.8, 88.2)	0.95(0.94, 0.96)
Mobile unit							
BSWN	741	843	87.9 (85.5, 90.0)	3,610	3,974	90.8(89.9, 91.7)	0.97(0.94, 0.99)
BSCM	261	328	79.6 (74.8, 83.8)	1,805	2,113	85.4(83.8, 86.9)	0.93(0.88, 0.99)
BSAL	257	302	85.1 (80.6, 88.9)	2,329	2,758	84.4(83.0, 85.8)	1.01(0.96, 1.06)
BSM	599	789	75.9 (72.8, 78.9)	2,631	3,158	83.3(82.0, 84.6)	0.91(0.87, 0.95)
BSCtoC	309	442	69.9 (65.4, 74.2)	904	1,076	84.0(81.7, 86.2)	0.83(0.78, 0.89)
BSC	425	498	85.3 (81.9, 88.3)	3,832	4,362	87.8(86.8, 88.8)	0.97(0.94, 1.01)
BSSL	90	111	81.1 (72.5, 87.9)	1,148	1,299	88.4(86.5, 90.1)	0.92(0.84, 1.01)
BSHC	129	162	79.6 (72.6, 85.5)	2,154	2,578	83.6(82.1, 85.0)	0.95(0.88, 1.03)
Total BSA	2,811	3,475	80.9 (79.5, 82.2)	18,413	21,318	86.4(85.9, 86.8)	0.94(0.92, 0.95)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Shaded boxes show confidence interval excludes target of >80%.

Among women aged 45–49 years, over 80% of Māori and 88% of non-Māori women had no more than four images taken in both fixed and mobile units.

There was some variation by LP in these percentages for Māori women screened in mobile units.

Table 2a.2: Percentage of women aged 50–69 years having 4 images or fewer by type of screening unit, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Women having 4 images or fewer	Number of women screened	% of women screened who had 4 images or fewer (95% CI)	Women having 4 images or fewer	Number of women screened	% of women screened who had 4 images or fewer (95% CI)	
Fixed Unit							
BSWN	2,860	3,357	85.2 (83.9, 86.4)	35,615	39,390	90.4 (90.1, 90.7)	<i>0.94 (0.93, 0.96)</i>
BSCM	2,212	3,067	72.1 (70.5, 73.7)	21,565	26,144	82.5 (82.0, 82.9)	<i>0.87 (0.85, 0.89)</i>
BSAL	932	1,190	78.3 (75.9, 80.6)	19,955	23,241	85.9 (85.4, 86.3)	<i>0.91 (0.88, 0.94)</i>
BSM	4,483	5,465	82.0 (81.0, 83.0)	30,801	34,450	89.4 (89.1, 89.7)	<i>0.92 (0.91, 0.93)</i>
BSCtoC	4,154	5,078	81.8 (80.7, 82.9)	34,593	38,535	89.8 (89.5, 90.1)	<i>0.91 (0.90, 0.92)</i>
BSC	1,370	1,803	76.0 (73.9, 77.9)	18,002	21,091	85.4 (84.9, 85.8)	<i>0.89 (0.87, 0.91)</i>
BSSL	2,646	3,151	84.0 (82.6, 85.2)	57,563	66,255	86.9 (86.6, 87.1)	<i>0.97 (0.95, 0.98)</i>
BSHC	670	798	84.0 (81.2, 86.4)	15,287	17,637	86.7 (86.2, 87.2)	<i>0.97 (0.94, 1.00)</i>
Total BSA	19,327	23,909	80.8 (80.3, 81.3)	233,381	266,743	87.5 (87.4, 87.6)	0.92 (0.92, 0.93)
Mobile unit							
BSWN	2,220	2,607	85.2 (83.7, 86.5)	12,461	13,947	89.3 (88.8, 89.9)	<i>0.95 (0.94, 0.97)</i>
BSCM	686	933	73.5 (70.6, 76.3)	5,576	6,573	84.8 (83.9, 85.7)	<i>0.87 (0.83, 0.90)</i>
BSAL	608	743	81.8 (78.9, 84.5)	5,934	7,102	83.6 (82.7, 84.4)	<i>0.98 (0.95, 1.01)</i>
BSM	1,887	2,637	71.6 (69.8, 73.3)	11,326	13,623	83.1 (82.5, 83.8)	<i>0.86 (0.84, 0.88)</i>
BSCtoC	1,028	1,603	64.1 (61.7, 66.5)	4,482	5,429	82.6 (81.5, 83.6)	<i>0.78 (0.75, 0.81)</i>
BSC	1,023	1,276	80.2 (77.9, 82.3)	12,819	14,642	87.5 (87.0, 88.1)	<i>0.92 (0.89, 0.94)</i>
BSSL	273	343	79.6 (74.9, 83.7)	4,741	5,370	88.3 (87.4, 89.1)	<i>0.90 (0.85, 0.95)</i>
BSHC	287	381	75.3 (70.7, 79.6)	8,148	9,927	82.1 (81.3, 82.8)	<i>0.92 (0.87, 0.97)</i>
Total BSA	8,012	10,523	76.1 (75.3, 76.9)	65,487	76,613	85.5 (85.2, 85.7)	0.89 (0.88, 0.90)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Shaded boxes show confidence interval excludes target value of >80%.

Among Māori women screened in fixed units, 81% had no more than four images overall. BSCM and BSC had the lowest proportions at 72% and 76% respectively. The proportion for BSCM had increased since the previous biennium, while BSC remained the same. For all LPs, the proportion of non-Māori women who had no more than four images was on target at over 80%.

Among Māori women screened in mobile units, 76% had no more than four images, a small decrease since the previous report. The lowest proportion was in BSCtoC (64%).

2b Technical recall rate

Description:

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

Target for women aged 50–69 years:

Fixed <0.5%

Mobile <3%

Table 2b.1: Percentage of women aged 45–49 years having technical recall as a percentage of women screened, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Women having technical recall	Number of women screened	% of women screened who had technical recall (95% CI)	Women having technical recall	Number of women screened	% of women screened who had technical recall (95% CI)	
Fixed site							
BSWN	2	1,312	0.2 (0.0, 0.5)	3	13,252	0.0 (0.0, 0.1)	6.73 (1.13, 40.26)
BSCM	1	1,380	0.1 (0.0, 0.4)	14	9,706	0.1 (0.1, 0.2)	0.50 (0.07, 3.82)
BSAL	3	456	0.7 (0.1, 1.9)	30	8,406	0.4 (0.2, 0.5)	1.84 (0.56, 6.02)
BSM	6	2,015	0.3 (0.1, 0.6)	60	9,385	0.6 (0.5, 0.8)	0.47 (0.20, 1.08)
BSCtoC	5	1,786	0.3 (0.1, 0.7)	9	9,792	0.1 (0.0, 0.2)	3.05 (1.02, 9.08)
BSC	6	653	0.9 (0.3, 2.0)	47	6,401	0.7 (0.5, 1.0)	1.25 (0.54, 2.92)
BSSL	3	1,448	0.2 (0.0, 0.6)	53	21,110	0.3 (0.2, 0.3)	0.83 (0.26, 2.64)
BSHC	0	373	0.0 (0.0, 1.0)	2	5,139	0.0 (0.0, 0.1)	0.00 (0.00, 73.36)
Total BSA	26	9,423	0.3 (0.2, 0.4)	218	83,191	0.3 (0.2, 0.3)	1.05 (0.70, 1.58)
Mobile site							
BSWN	1	843	0.1 (0.0, 0.7)	0	3,974	0.0 (0.0, 0.1)	Inf (0.12, Inf)
BSCM	0	328	0.0 (0.0, 1.1)	11	2,113	0.5 (0.3, 0.9)	0.00 (0.00, 2.57)
BSAL	10	302	3.3 (1.6, 6.0)	97	2,758	3.5 (2.9, 4.3)	0.94 (0.50, 1.79)
BSM	21	789	2.7 (1.7, 4.0)	93	3,158	2.9 (2.4, 3.6)	0.90 (0.57, 1.44)
BSCtoC	8	442	1.8 (0.8, 3.5)	20	1,076	1.9 (1.1, 2.9)	0.97 (0.43, 2.19)
BSC	7	498	1.4 (0.6, 2.9)	64	4,362	1.5 (1.1, 1.9)	0.96 (0.44, 2.08)
BSSL	0	111	0.0 (0.0, 3.3)	10	1,299	0.8 (0.4, 1.4)	0.00 (0.00, 5.22)
BSHC	1	162	0.6 (0.0, 3.4)	10	2,578	0.4 (0.2, 0.7)	1.59 (0.20, 12.36)
Total BSA	48	3,475	1.4 (1.0, 1.8)	305	21,318	1.4 (1.3, 1.6)	0.97 (0.71, 1.31)

Ratios above one are unfavourable to Māori.

Among Māori women aged 45–49 years, 0.3% of women screened in fixed sites and 1.4% of those screened in mobile units were recalled for technical reasons. These proportions were slightly lower than the previous biennium.

Table 2b.2: Percentage of women aged 50–69 years having technical recall as a percentage of women screened, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Women having technical recall	Number of women screened	% of women screened who had technical recall (95% CI)	Women having technical recall	Number of women screened	% of women screened who had technical recall (95% CI)	
Fixed site							
BSWN	1	3,357	0.0(0.0, 0.2)	9	39,390	0.0(0.0, 0.0)	1.30 (0.17, 10.29)
BSCM	4	3,067	0.1(0.0, 0.3)	10	26,144	0.0(0.0, 0.1)	3.41 (1.07, 10.87)
BSAL	2	1,190	0.2(0.0, 0.6)	38	23,241	0.2(0.1, 0.2)	1.03 (0.25, 4.26)
BSM	18	5,465	0.3(0.2, 0.5)	112	34,450	0.3(0.3, 0.4)	1.01 (0.62, 1.67)
BSCtoC	4	5,078	0.1(0.0, 0.2)	73	38,535	0.2(0.1, 0.2)	0.42 (0.15, 1.14)
BSC	12	1,803	0.7(0.3, 1.2)	85	21,091	0.4(0.3, 0.5)	1.65 (0.90, 3.02)
BSSL	6	3,151	0.2(0.1, 0.4)	78	66,255	0.1(0.1, 0.1)	1.62 (0.71, 3.71)
BSHC	1	798	0.1(0.0, 0.7)	7	17,637	0.0(0.0, 0.1)	3.16 (0.39, 25.63)
Total BSA	48	23,909	0.2(0.1, 0.3)	412	266,743	0.2(0.1, 0.2)	1.30 (0.96, 1.75)
Mobile site							
BSWN	1	2,607	0.0(0.0, 0.2)	2	13,947	0.0(0.0, 0.1)	2.67 (0.24, 29.49)
BSCM	5	933	0.5(0.2, 1.2)	29	6,573	0.4(0.3, 0.6)	1.21 (0.47, 3.13)
BSAL	31	743	4.2(2.9, 5.9)	268	7,102	3.8(3.3, 4.2)	1.11 (0.77, 1.59)
BSM	56	2,637	2.1(1.6, 2.7)	294	13,623	2.2(1.9, 2.4)	0.98 (0.74, 1.31)
BSCtoC	33	1,603	2.1(1.4, 2.9)	109	5,429	2.0(1.7, 2.4)	1.03 (0.70, 1.51)
BSC	19	1,276	1.5(0.9, 2.3)	139	14,642	0.9(0.8, 1.1)	1.57 (0.97, 2.52)
BSSL	5	343	1.5(0.5, 3.4)	44	5,370	0.8(0.6, 1.1)	1.78 (0.71, 4.46)
BSHC	1	381	0.3(0.0, 1.5)	17	9,927	0.2(0.1, 0.3)	1.53 (0.20, 11.49)
Total BSA	151	10,523	1.4(1.2, 1.7)	902	76,613	1.2(1.1, 1.3)	1.22 (1.03, 1.45)

Ratios above one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Targets are <0.5% for fixed sites and <3% for mobile sites.

Among women aged 50–69 years, the targets for technical recall were met or were within the confidence interval for both Māori and non-Māori in fixed nits.

The overall proportions of Māori and non-Māori women screened in mobile units who were recalled for technical reasons has almost halved since the previous report. However, the technical recall rates for BSAL mobile units do not appear to be decreasing.

Figure 2b.1a: Trends in technical recall rates for Māori women aged 50–69 years screened in fixed sites

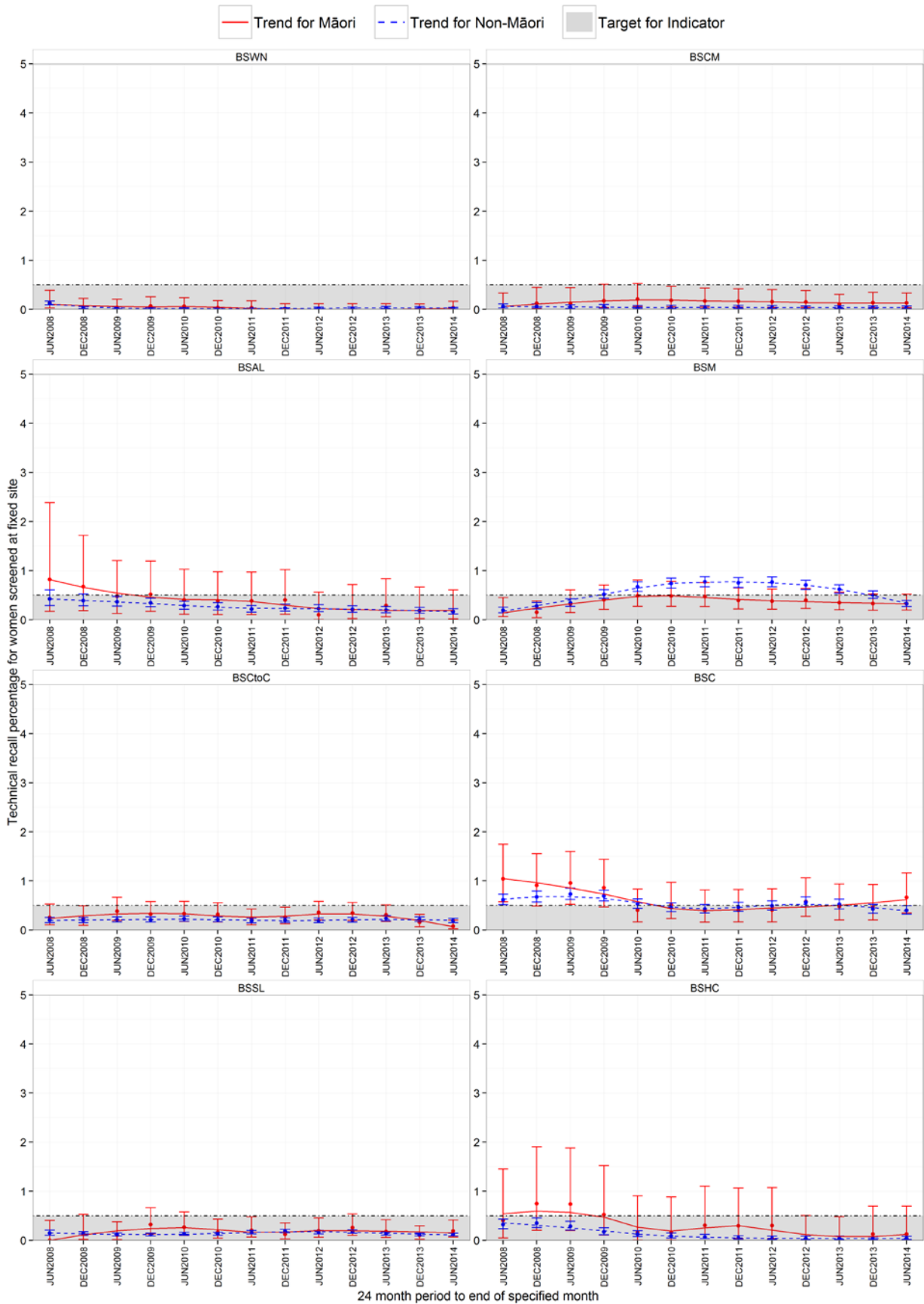
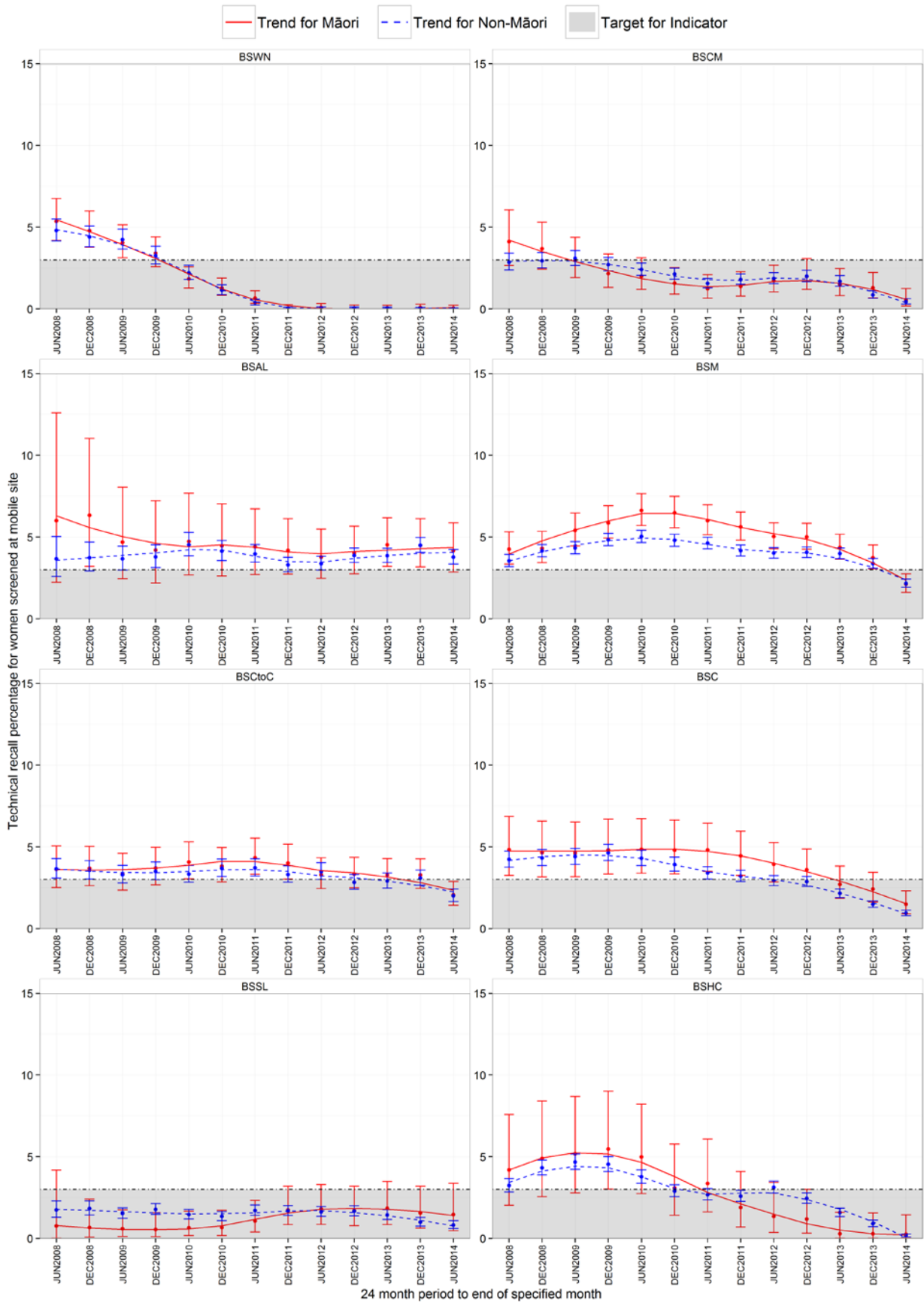


Figure 2b.1b: Trends in technical recall rates for Māori women aged 50–69 years screened in mobile units



2c Technical reject rate

Description:

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

Target for women aged 50–69 years:

Fixed: <3%

Mobile: <3%

Table 2c.1: Rejected images as a percentage of total images taken among women aged 45–49 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Total images rejected	Total images taken	% of images taken that were rejected (95% CI)	Total images rejected	Total images taken	% of images taken that were rejected (95% CI)	
Fixed unit							
BSWN	51	5,535	0.9 (0.7, 1.2)	510	55,475	0.9 (0.8, 1.0)	1.00 (0.75, 1.33)
BSCM	58	5,977	1.0 (0.7, 1.3)	470	41,492	1.1 (1.0, 1.2)	0.86 (0.65, 1.12)
BSAL	19	1,980	1.0 (0.6, 1.5)	365	36,020	1.0 (0.9, 1.1)	0.95 (0.60, 1.50)
BSM	61	8,606	0.7 (0.5, 0.9)	343	39,313	0.9 (0.8, 1.0)	0.81 (0.62, 1.07)
BSCtoC	62	7,575	0.8 (0.6, 1.0)	286	40,526	0.7 (0.6, 0.8)	1.16 (0.88, 1.52)
BSC	18	2,781	0.6 (0.4, 1.0)	202	26,853	0.8 (0.7, 0.9)	0.86 (0.53, 1.39)
BSSL	28	6,135	0.5 (0.3, 0.7)	539	88,459	0.6 (0.6, 0.7)	0.75 (0.51, 1.09)
BSHC	14	1,582	0.9 (0.5, 1.5)	182	21,492	0.8 (0.7, 1.0)	1.05 (0.61, 1.80)
Total BSA	311	40,171	0.8 (0.7, 0.9)	2,897	349,630	0.8 (0.8, 0.9)	0.93 (0.83, 1.05)
Mobile unit							
BSWN	21	3,519	0.6 (0.4, 0.9)	134	16,541	0.8 (0.7, 1.0)	0.74 (0.47, 1.17)
BSCM	26	1,418	1.8 (1.2, 2.7)	124	8,901	1.4 (1.2, 1.7)	1.32 (0.87, 2.00)
BSAL	1	1,265	0.1 (0.0, 0.4)	36	11,709	0.3 (0.2, 0.4)	0.26 (0.04, 1.87)
BSM	25	3,459	0.7 (0.5, 1.1)	148	13,469	1.1 (0.9, 1.3)	0.66 (0.43, 1.00)
BSCtoC	20	2,017	1.0 (0.6, 1.5)	30	4,588	0.7 (0.4, 0.9)	1.52 (0.86, 2.66)
BSC	5	2,087	0.2 (0.1, 0.6)	85	18,153	0.5 (0.4, 0.6)	0.51 (0.21, 1.26)
BSSL	2	479	0.4 (0.1, 1.5)	24	5,446	0.4 (0.3, 0.7)	0.95 (0.22, 4.00)
BSHC	3	696	0.4 (0.1, 1.3)	143	10,865	1.3 (1.1, 1.5)	0.33 (0.10, 1.02)
Total BSA	103	14,940	0.7 (0.6, 0.8)	724	89,672	0.8 (0.7, 0.9)	0.85 (0.70, 1.05)

Ratios above one are unfavourable to Māori.

Targets are <3% for fixed sites and <3% for mobile sites.

Less than 1% of images were rejected for technical reasons among Māori and non-Māori women aged 45–49 years. Although still small, the proportion of images rejected from screens conducted in mobile units appears to have increased.

Table 2c.2: Rejected images as a percentage of total images taken among women aged 50–69 years, 2 years (July 2012 to June 2014)

Lead Provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Total images rejected	Total images taken	% of images taken that were rejected (95% CI)	Total images rejected	Total images taken	% of images taken that were rejected (95% CI)	
Fixed unit							
BSWN	114	14,145	0.8 (0.7, 1.0)	1,352	163,294	0.8 (0.8, 0.9)	0.97 (0.80, 1.18)
BSCM	175	13,627	1.3 (1.1, 1.5)	1,228	111,405	1.1 (1.0, 1.2)	1.17 (1.00, 1.36)
BSAL	54	5,190	1.0 (0.8, 1.4)	868	98,427	0.9 (0.8, 0.9)	1.18 (0.90, 1.55)
BSM	223	23,355	1.0 (0.8, 1.1)	1,213	143,344	0.8 (0.8, 0.9)	1.13 (0.98, 1.30)
BSCtoC	145	21,674	0.7 (0.6, 0.8)	1,180	159,703	0.7 (0.7, 0.8)	0.91 (0.76, 1.08)
BSC	57	7,851	0.7 (0.6, 0.9)	605	88,537	0.7 (0.6, 0.7)	1.06 (0.81, 1.39)
BSSL	55	13,352	0.4 (0.3, 0.5)	1,496	276,632	0.5 (0.5, 0.6)	0.76 (0.58, 1.00)
BSHC	28	3,379	0.8 (0.6, 1.2)	722	73,737	1.0 (0.9, 1.1)	0.85 (0.58, 1.23)
Total BSA	851	102,573	0.8 (0.8, 0.9)	8,664	1,115,079	0.8 (0.8, 0.8)	1.07 (1.00, 1.15)
Mobile unit							
BSWN	68	10,967	0.6 (0.5, 0.8)	476	58,020	0.8 (0.7, 0.9)	0.76 (0.59, 0.97)
BSCM	73	4,139	1.8 (1.4, 2.2)	382	27,694	1.4 (1.2, 1.5)	1.28 (1.00, 1.64)
BSAL	15	3,196	0.5 (0.3, 0.8)	106	30,212	0.4 (0.3, 0.4)	1.34 (0.78, 2.29)
BSM	119	11,751	1.0 (0.8, 1.2)	522	57,664	0.9 (0.8, 1.0)	1.12 (0.92, 1.36)
BSCtoC	69	7,455	0.9 (0.7, 1.2)	176	23,245	0.8 (0.6, 0.9)	1.22 (0.93, 1.61)
BSC	30	5,456	0.5 (0.4, 0.8)	227	60,765	0.4 (0.3, 0.4)	1.47 (1.01, 2.15)
BSSL	8	1,484	0.5 (0.2, 1.1)	109	22,403	0.5 (0.4, 0.6)	1.11 (0.54, 2.27)
BSHC	23	1,668	1.4 (0.9, 2.1)	579	41,971	1.4 (1.3, 1.5)	1.00 (0.66, 1.51)
Total BSA	405	46,116	0.9 (0.8, 1.0)	2,577	321,974	0.8 (0.8, 0.8)	1.10 (0.99, 1.22)

Ratios above one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Targets are <3% for fixed sites and <3% for mobile sites.

All LPs met the target of less than 3% of images rejected for technical reasons. However, there was a small increase in the number of images rejected from those conducted in mobile units.

2d Assessment rate

Description:

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

Target for women aged 50–69 years:

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 aged 45–49 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of women referred to assessment	No. of women screened	% of women screened referred to assessment (95% CI)	No. of women referred to assessment	No. of women screened	% of women screened referred to assessment (95% CI)	
Initial screen							
BSWN	121	976	12.4 (10.4, 14.6)	754	7,764	9.7(9.1, 10.4)	<i>1.28(1.07, 1.53)</i>
BSCM	75	866	8.7 (6.9, 10.7)	372	5,536	6.7(6.1, 7.4)	<i>1.29(1.02, 1.63)</i>
BSAL	19	358	5.3 (3.2, 8.2)	362	5,214	6.9(6.3, 7.7)	0.76(0.49, 1.20)
BSM	195	1,608	12.1 (10.6, 13.8)	625	6,318	9.9(9.2, 10.7)	<i>1.23(1.05, 1.43)</i>
BSCtoC	97	1,054	9.2 (7.5, 11.1)	267	4,498	5.9(5.3, 6.7)	<i>1.55(1.24, 1.94)</i>
BSC	30	570	5.3 (3.6, 7.4)	335	5,115	6.5(5.9, 7.3)	0.80(0.56, 1.16)
BSSL	87	699	12.4 (10.1, 15.1)	849	8,907	9.5(8.9, 10.2)	<i>1.31(1.06, 1.61)</i>
BSHC	19	298	6.4 (3.9, 9.8)	296	4,067	7.3(6.5, 8.1)	0.88(0.56, 1.37)
Total BSA	643	6,429	10.0 (9.3, 10.8)	3,860	47,419	8.1(7.9, 8.4)	<i>1.23(1.13, 1.33)</i>
Subsequent screen							
BSWN	48	1,179	4.1 (3.0, 5.4)	462	9,462	4.9(4.5, 5.3)	0.83(0.62, 1.12)
BSCM	32	842	3.8 (2.6, 5.3)	231	6,283	3.7(3.2, 4.2)	1.03(0.72, 1.49)
BSAL	12	400	3.0 (1.6, 5.2)	199	5,950	3.3(2.9, 3.8)	0.90(0.51, 1.59)
BSM	43	1,196	3.6 (2.6, 4.8)	317	6,225	5.1(4.6, 5.7)	<i>0.71(0.52, 0.96)</i>
BSCtoC	27	1,174	2.3 (1.5, 3.3)	148	6,370	2.3(2.0, 2.7)	0.99(0.66, 1.48)
BSC	16	581	2.8 (1.6, 4.4)	229	5,648	4.1(3.6, 4.6)	0.68(0.41, 1.12)
BSSL	48	860	5.6 (4.1, 7.3)	680	13,502	5.0(4.7, 5.4)	1.11(0.83, 1.47)
BSHC	9	237	3.8 (1.8, 7.1)	121	3,650	3.3(2.8, 3.9)	1.15(0.59, 2.23)
Total BSA	235	6,469	3.6 (3.2, 4.1)	2,387	57,090	4.2(4.0, 4.3)	<i>0.87(0.76, 0.99)</i>

Ratios above one indicate a higher rate of referral to assessment for Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori referral rates.

Among women aged 45–49 years having an initial screen, Māori women were 23% more likely than non-Māori women to be referred for assessment.

However, referral rates for Māori women having a subsequent screen were lower than those of non-Māori women.

Table 2d.2: Referral to assessment as a percentage of women aged 50–69 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of women referred to assessment	No. of women screened	% of women screened who were referred to assessment (95% CI)	No. of women referred to assessment	No. of women screened	% of women screened who were referred to assessment (95% CI)	
Initial screen							
BSWN	49	348	14.1 (10.6, 18.2)	393	3,389	11.6 (10.5, 12.7)	1.21 (0.92, 1.60)
BSCM	30	314	9.6 (6.5, 13.4)	229	2,826	8.1 (7.1, 9.2)	1.18 (0.82, 1.69)
BSAL	11	158	7.0 (3.5, 12.1)	172	2,818	6.1 (5.2, 7.1)	1.14 (0.63, 2.05)
BSM	149	1,064	14.0 (12.0, 16.2)	340	3,425	9.9 (8.9, 11.0)	1.41 (1.18, 1.69)
BSCtoC	45	541	8.3 (6.1, 11.0)	107	1,888	5.7 (4.7, 6.8)	1.47 (1.05, 2.05)
BSC	20	214	9.3 (5.8, 14.1)	142	2,134	6.7 (5.6, 7.8)	1.40 (0.90, 2.20)
BSSL	15	128	11.7 (6.7, 18.6)	181	1,839	9.8 (8.5, 11.3)	1.19 (0.73, 1.95)
BSHC	9	76	11.8 (5.6, 21.3)	102	1,259	8.1 (6.7, 9.7)	1.46 (0.77, 2.77)
Total BSA	328	2,843	11.5 (10.4, 12.8)	1,666	19,578	8.5 (8.1, 8.9)	1.36 (1.21, 1.52)
Subsequent screen							
BSWN	235	5,616	4.2 (3.7, 4.7)	1,652	49,948	3.3 (3.2, 3.5)	1.27 (1.11, 1.45)
BSCM	112	3,686	3.0 (2.5, 3.6)	852	29,891	2.9 (2.7, 3.0)	1.07 (0.88, 1.29)
BSAL	39	1,775	2.2 (1.6, 3.0)	731	27,525	2.7 (2.5, 2.9)	0.83 (0.60, 1.14)
BSM	281	7,038	4.0 (3.5, 4.5)	1,540	44,648	3.4 (3.3, 3.6)	1.16 (1.02, 1.31)
BSCtoC	134	6,140	2.2 (1.8, 2.6)	753	42,076	1.8 (1.7, 1.9)	1.22 (1.02, 1.46)
BSC	117	2,865	4.1 (3.4, 4.9)	1,046	33,599	3.1 (2.9, 3.3)	1.31 (1.09, 1.58)
BSSL	125	3,366	3.7 (3.1, 4.4)	2,550	69,786	3.7 (3.5, 3.8)	1.02 (0.85, 1.21)
BSHC	29	1,103	2.6 (1.8, 3.8)	718	26,305	2.7 (2.5, 2.9)	0.96 (0.67, 1.39)
Total BSA	1,072	31,589	3.4 (3.2, 3.6)	9,842	323,778	3.0 (3.0, 3.1)	1.12 (1.05, 1.19)

Ratios above one indicate a higher referral to assessment rate for Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Proportions that excluded the expected values of <10% for initial screens and <5% for subsequent screens within the confidence interval have been shaded.

For women aged 50–69 years having an initial screen, the proportion referred for assessment was 11.5%, outside the expected value of <10%, and 36% higher than the non-Māori proportion. The referral rates for BSWN and BSM were 14%, but BSWN is showing a decreasing trend, while BSM may be showing an increasing trend.

The rates of referral to assessment from subsequent screens were all within the desired value of <4%.

Figure 2d.1a: Trends in referral to assessment for Māori women aged 50–69 years having an initial screen

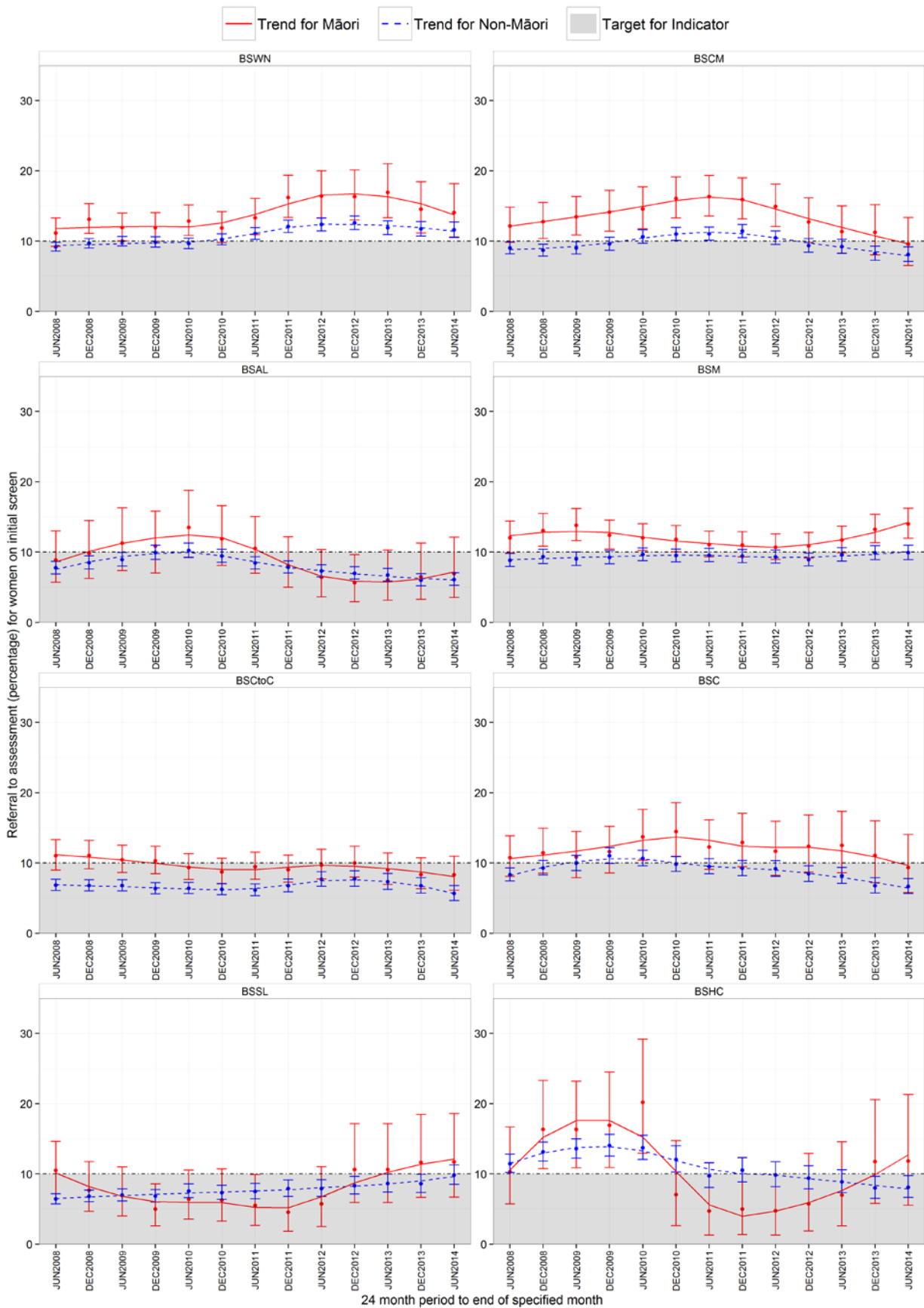
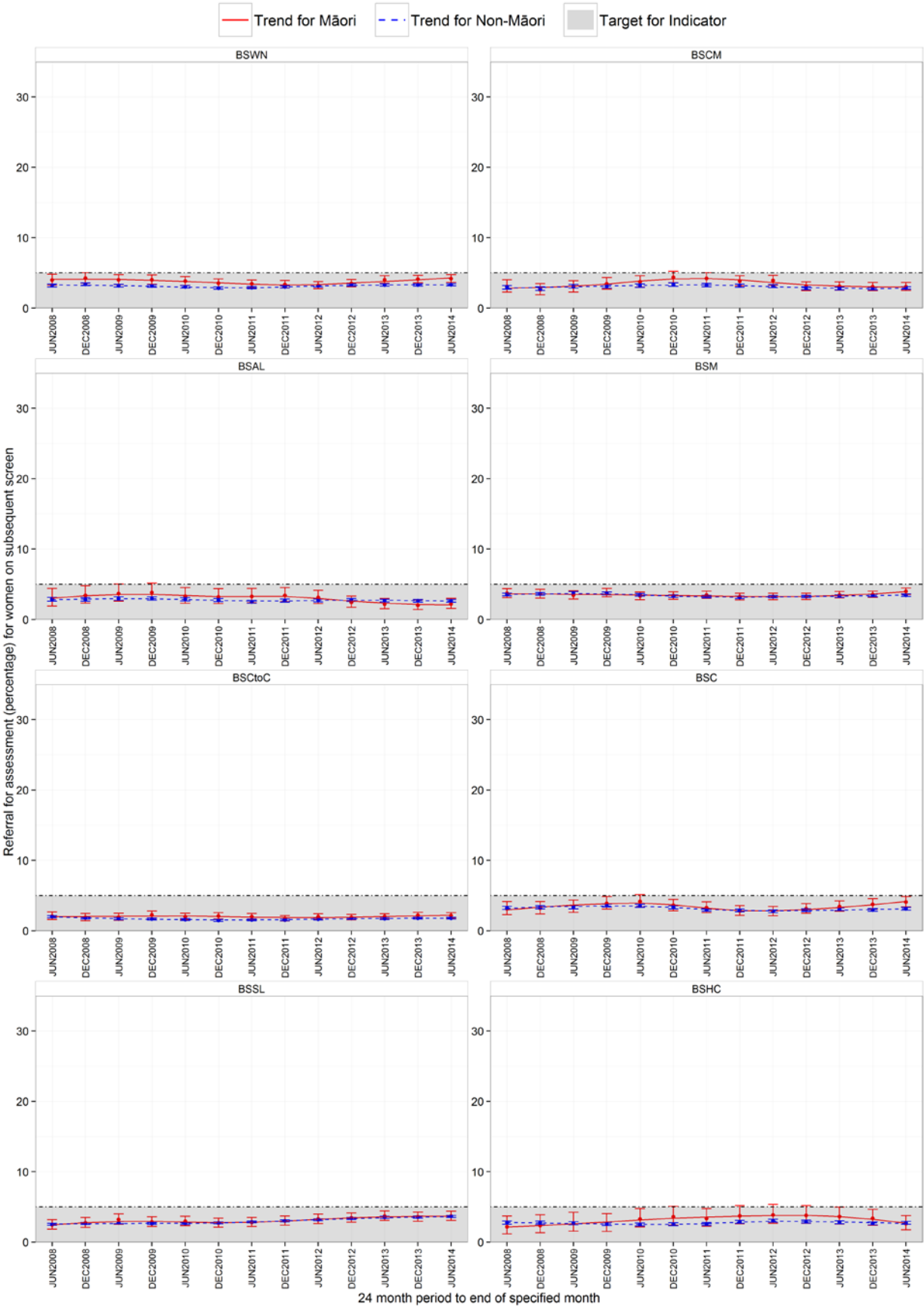


Figure 2d.1b: Trends in referral to assessment for Māori women aged 50–69 years having a subsequent screen



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 for women aged 50–69 years:

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, aged 45–49 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of false positives	No. of women screened	% of women screened who had a false positive (95% CI)	No. of false positives	No. of women screened	% of women screened who had a false positive (95% CI)	
Initial screen							
BSWN	110	976	11.3 (9.4, 13.4)	692	7,764	8.9(8.3, 9.6)	<i>1.26(1.05, 1.53)</i>
BSCM	70	866	8.1 (6.4, 10.1)	329	5,536	5.9(5.3, 6.6)	<i>1.36(1.06, 1.74)</i>
BSAL	16	358	4.5 (2.6, 7.2)	332	5,214	6.4(5.7, 7.1)	0.70(0.43, 1.15)
BSM	181	1,608	11.3 (9.8, 12.9)	588	6,318	9.3(8.6, 10.0)	<i>1.21(1.03, 1.42)</i>
BSCtoC	82	1,054	7.8 (6.2, 9.6)	239	4,498	5.3(4.7, 6.0)	<i>1.46(1.15, 1.86)</i>
BSC	29	570	5.1 (3.4, 7.2)	308	5,115	6.0(5.4, 6.7)	0.84(0.58, 1.22)
BSSL	78	699	11.2 (8.9, 13.7)	798	8,907	9.0(8.4, 9.6)	<i>1.25(1.00, 1.55)</i>
BSHC	17	298	5.7 (3.4, 9.0)	264	4,067	6.5(5.8, 7.3)	0.88(0.55, 1.41)
Total BSA	583	6,429	9.1 (8.4, 9.8)	3,550	47,419	7.5(7.3, 7.7)	<i>1.21(1.11, 1.32)</i>
Subsequent screen							
BSWN	43	1,179	3.6 (2.7, 4.9)	430	9,462	4.5(4.1, 5.0)	0.80(0.59, 1.09)
BSCM	24	842	2.9 (1.8, 4.2)	211	6,283	3.4(2.9, 3.8)	0.85(0.56, 1.29)
BSAL	8	400	2.0 (0.9, 3.9)	170	5,950	2.9(2.4, 3.3)	0.70(0.35, 1.41)
BSM	38	1,196	3.2 (2.3, 4.3)	294	6,225	4.7(4.2, 5.3)	<i>0.67(0.48, 0.94)</i>
BSCtoC	23	1,174	2.0 (1.2, 2.9)	133	6,370	2.1(1.8, 2.5)	0.94(0.61, 1.45)
BSC	12	581	2.1 (1.1, 3.6)	201	5,648	3.6(3.1, 4.1)	0.58(0.33, 1.03)
BSSL	42	860	4.9 (3.5, 6.5)	614	13,502	4.5(4.2, 4.9)	<i>1.07(0.79, 1.46)</i>
BSHC	7	237	3.0 (1.2, 6.0)	114	3,650	3.1(2.6, 3.7)	0.95(0.45, 2.01)
Total BSA	197	6,469	3.0 (2.6, 3.5)	2,167	57,090	3.8(3.6, 4.0)	<i>0.80(0.69, 0.93)</i>

Ratios above one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

The false positive rate for Māori women aged 45–49 years having an initial screen was 9%, around 20% higher than the non-Māori rate.

For Māori women having a subsequent screen the rates was 3%, 20% lower than the non-Māori rate.

Table 2e.2: Number with false positive results as a percentage of women screened, aged 50–69 years, 2 years (July 2012 to June 2014)

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 screen							
BSWN	42	348	12.1(8.8, 16.0)	358	3,389	10.6(9.5, 11.6)	1.14(0.85, 1.54)
BSCM	24	314	7.6(5.0, 11.2)	178	2,826	6.3(5.4, 7.3)	1.21(0.81, 1.83)
BSAL	9	158	5.7(2.6, 10.5)	141	2,818	5.0(4.2, 5.9)	1.14(0.59, 2.19)
BSM	126	1,064	11.8(10.0, 13.9)	298	3,425	8.7(7.8, 9.7)	1.36(1.12, 1.66)
BSCtoC	34	541	6.3(4.4, 8.7)	85	1,888	4.5(3.6, 5.5)	1.40(0.95, 2.05)
BSC	17	214	7.9(4.7, 12.4)	122	2,134	5.7(4.8, 6.8)	1.39(0.85, 2.26)
BSSL	12	128	9.4(4.9, 15.8)	166	1,839	9.0(7.8, 10.4)	1.04(0.59, 1.81)
BSHC	6	76	7.9(3.0, 16.4)	83	1,259	6.6(5.3, 8.1)	1.20(0.54, 2.65)
Total BSA	270	2,843	9.5(8.4, 10.6)	1,431	19,578	7.3(6.9, 7.7)	1.30(1.15, 1.47)
Subsequent screen							
BSWN	180	5,616	3.2(2.8, 3.7)	1,324	49,948	2.7(2.5, 2.8)	1.21(1.04, 1.41)
BSCM	74	3,686	2.0(1.6, 2.5)	681	29,891	2.3(2.1, 2.5)	0.88(0.69, 1.12)
BSAL	32	1,775	1.8(1.2, 2.5)	571	27,525	2.1(1.9, 2.2)	0.87(0.61, 1.24)
BSM	199	7,038	2.8(2.5, 3.2)	1,247	44,648	2.8(2.6, 3.0)	1.01(0.87, 1.17)
BSCtoC	86	6,140	1.4(1.1, 1.7)	524	42,076	1.2(1.1, 1.4)	1.12(0.90, 1.41)
BSC	90	2,865	3.1(2.5, 3.8)	870	33,599	2.6(2.4, 2.8)	1.21(0.98, 1.50)
BSSL	99	3,366	2.9(2.4, 3.6)	2,090	69,786	3.0(2.9, 3.1)	0.98(0.81, 1.20)
BSHC	21	1,103	1.9(1.2, 2.9)	562	26,305	2.1(2.0, 2.3)	0.89(0.58, 1.37)
Total BSA	781	31,589	2.5(2.3, 2.6)	7,869	323,778	2.4(2.4, 2.5)	1.02(0.95, 1.09)

Ratios above one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Proportions that exceeded the expected value of <9% for initial screens and <4% for subsequent screens within the confidence interval have been shaded.

For women aged 50–69 years having an initial screen with BSA, the false positive rate was 9.5% for Māori women, 30% higher than the non-Māori rate. BSM and BSWN both exceeded the expected value, with BSM showing a possible increasing trend while the rate for BSWN is decreasing (and within the confidence interval).

For women having subsequent screens, the false positive rates were within the desired value for both Māori and non-Māori women.

Figure 2e.1: Trends in false positive rates for Māori women aged 50–69 years having an initial screen

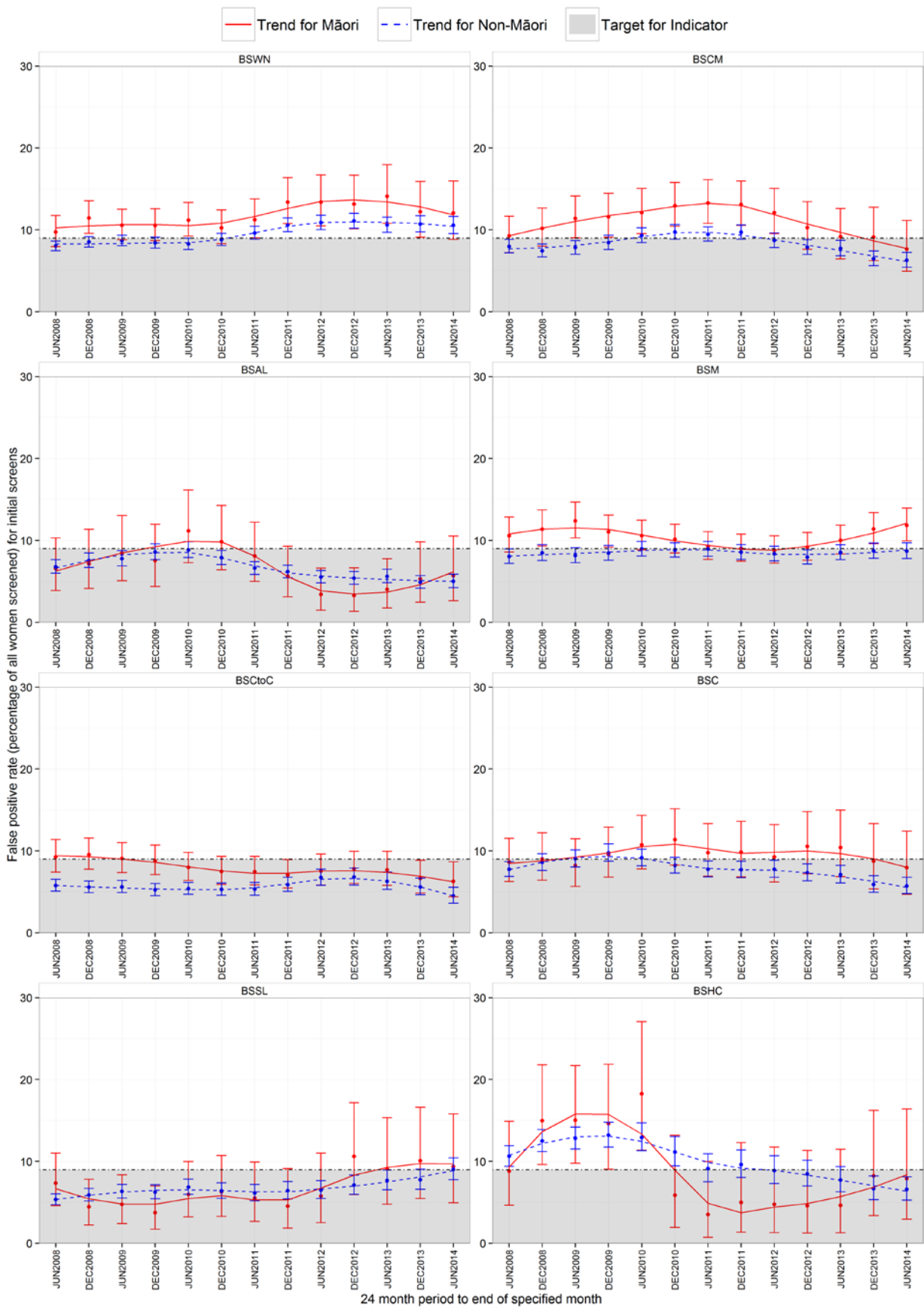
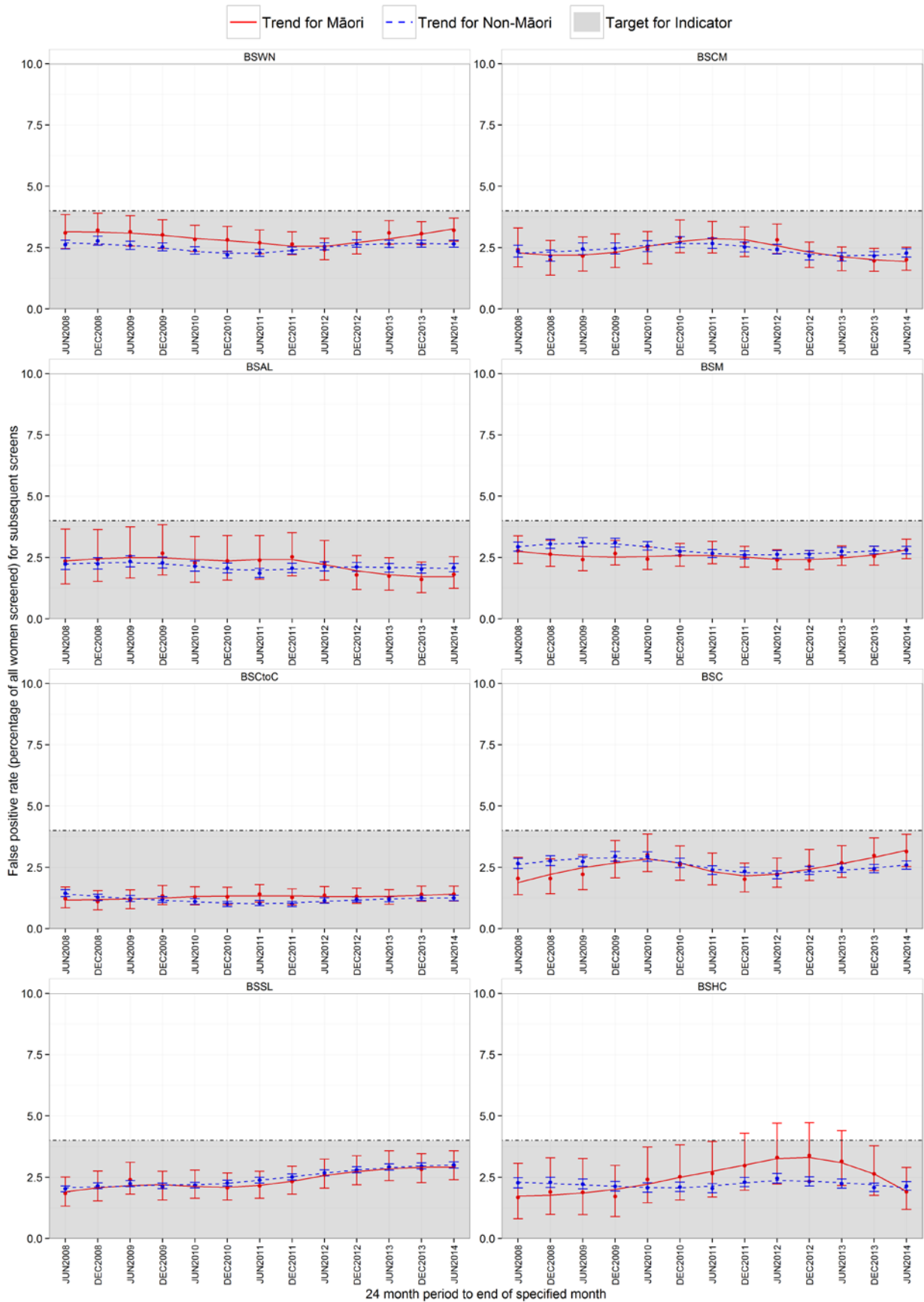


Figure 2e.2 Trends in false positive rates for Māori women aged 50–69 years having a subsequent screen



2f Positive predictive value of screening mammogram

Description:

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

Target for women aged 50–69 years:

The number with diagnosed cancer as a percentage of the number referred to assessment $\geq 9\%$

Table 2f.1: Cancers as a percentage of referrals to assessment, women aged 45–49 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
Initial screen							
BSWN	9	121	7.4 (3.5, 13.7)	45	754	6.0 (4.4, 7.9)	1.25 (0.63, 2.48)
BSCM	4	75	5.3 (1.5, 13.1)	30	372	8.1 (5.5, 11.3)	0.66 (0.24, 1.82)
BSAL	3	19	15.8 (3.4, 39.6)	21	362	5.8 (3.6, 8.7)	2.72 (0.89, 8.33)
BSM	10	195	5.1 (2.5, 9.2)	30	625	4.8 (3.3, 6.8)	1.07 (0.53, 2.15)
BSCtoC	13	97	13.4 (7.3, 21.8)	25	267	9.4 (6.2, 13.5)	1.43 (0.76, 2.68)
BSC	1	30	3.3 (0.1, 17.2)	25	335	7.5 (4.9, 10.8)	0.45 (0.06, 3.18)
BSSL	9	87	10.3 (4.8, 18.7)	44	849	5.2 (3.8, 6.9)	2.00 (1.01, 3.95)
BSHC	2	19	10.5 (1.3, 33.1)	30	296	10.1 (6.9, 14.2)	1.04 (0.27, 4.02)
Total	51	643	7.9 (6.0, 10.3)	250	3,860	6.5 (5.7, 7.3)	1.22 (0.92, 1.64)
Subsequent screen							
BSWN	2	48	4.2 (0.5, 14.3)	30	462	6.5 (4.4, 9.1)	0.64 (0.16, 2.60)
BSCM	7	32	21.9 (9.3, 40.0)	17	231	7.4 (4.3, 11.5)	2.97 (1.34, 6.61)
BSAL	3	12	25.0 (5.5, 57.2)	22	199	11.1 (7.1, 16.3)	2.26 (0.79, 6.50)
BSM	4	43	9.3 (2.6, 22.1)	18	317	5.7 (3.4, 8.8)	1.64 (0.58, 4.61)
BSCtoC	3	27	11.1 (2.4, 29.2)	15	148	10.1 (5.8, 16.2)	1.10 (0.34, 3.53)
BSC	4	16	25.0 (7.3, 52.4)	23	229	10.0 (6.5, 14.7)	2.49 (0.98, 6.33)
BSSL	6	48	12.5 (4.7, 25.2)	60	680	8.8 (6.8, 11.2)	1.42 (0.65, 3.11)
BSHC	2	9	22.2 (2.8, 60.0)	7	121	5.8 (2.4, 11.6)	3.84 (0.93, 15.86)
Total	31	235	13.2 (9.1, 18.2)	192	2,387	8.0 (7.0, 9.2)	1.64 (1.15, 2.34)

Ratios above one indicate a higher positive predictive value for Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among women aged 45–49 years who were referred for assessment, 8% of Māori women and 7% of non-Māori women having an initial screen were diagnosed with breast cancer.

Among women referred from a subsequent screen, 13% of Māori women had a breast cancer detected, two-thirds higher than the proportion of non-Māori women (8%).

Table 2f.2: Cancers as a percentage of referrals to assessment, women aged 50–69 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
Initial screen							
BSWN	6	49	12.2 (4.6, 24.8)	20	393	5.1 (3.1, 7.8)	2.41 (1.02, 5.70)
BSCM	4	30	13.3 (3.8, 30.7)	31	229	13.5 (9.4, 18.7)	0.98 (0.37, 2.60)
BSAL	2	11	18.2 (2.3, 51.8)	27	172	15.7 (10.6, 22.0)	1.16 (0.32, 4.25)
BSM	18	149	12.1 (7.3, 18.4)	34	340	10.0 (7.0, 13.7)	1.21 (0.71, 2.07)
BSCtoC	9	45	20.0 (9.6, 34.6)	20	107	18.7 (11.8, 27.4)	1.07 (0.53, 2.17)
BSC	3	20	15.0 (3.2, 37.9)	19	142	13.4 (8.3, 20.1)	1.12 (0.36, 3.45)
BSSL	3	15	20.0 (4.3, 48.1)	12	181	6.6 (3.5, 11.3)	3.02 (0.95, 9.53)
BSHC	2	9	22.2 (2.8, 60.0)	15	102	14.7 (8.5, 23.1)	1.51 (0.41, 5.59)
Total BSA	47	328	14.3 (10.7, 18.6)	178	1,666	10.7 (9.2, 12.3)	1.34 (0.99, 1.81)
Subsequent screen							
BSWN	52	235	22.1 (17.0, 28.0)	300	1,652	18.2 (16.3, 20.1)	1.22 (0.94, 1.58)
BSCM	36	112	32.1 (23.6, 41.6)	155	852	18.2 (15.7, 21.0)	1.77 (1.30, 2.40)
BSAL	6	39	15.4 (5.9, 30.5)	144	731	19.7 (16.9, 22.8)	0.78 (0.37, 1.65)
BSM	78	281	27.8 (22.6, 33.4)	274	1,540	17.8 (15.9, 19.8)	1.56 (1.26, 1.94)
BSCtoC	47	134	35.1 (27.0, 43.8)	209	753	27.8 (24.6, 31.1)	1.26 (0.98, 1.63)
BSC	24	117	20.5 (13.6, 29.0)	165	1,046	15.8 (13.6, 18.1)	1.30 (0.89, 1.91)
BSSL	25	125	20.0 (13.4, 28.1)	445	2,550	17.5 (16.0, 19.0)	1.15 (0.80, 1.64)
BSHC	6	29	20.7 (8.0, 39.7)	141	718	19.6 (16.8, 22.7)	1.05 (0.51, 2.18)
Total BSA	274	1,072	25.6 (23.0, 28.3)	1,833	9,842	18.6 (17.9, 19.4)	1.37 (1.23, 1.53)

Ratios above one indicate a higher positive predictive value for Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Target value is $\geq 9\%$.

Among Māori women aged 50–69 years who were referred to assessment from an initial screen, 14% were diagnosed with breast cancer, well above the target value of 9% or more.

The positive predictive value for subsequent screens was more than twice the target value for both Māori and non-Māori women. Of Māori women referred from a subsequent screen, 26% had a breast cancer detected, over a third higher than the proportion of non-Māori women (19%).

Figure 2f.1: Trends in the proportion of referrals to assessment that were diagnosed as breast cancer (DCIS and invasive) among Māori women aged 50–69 years having an initial screen

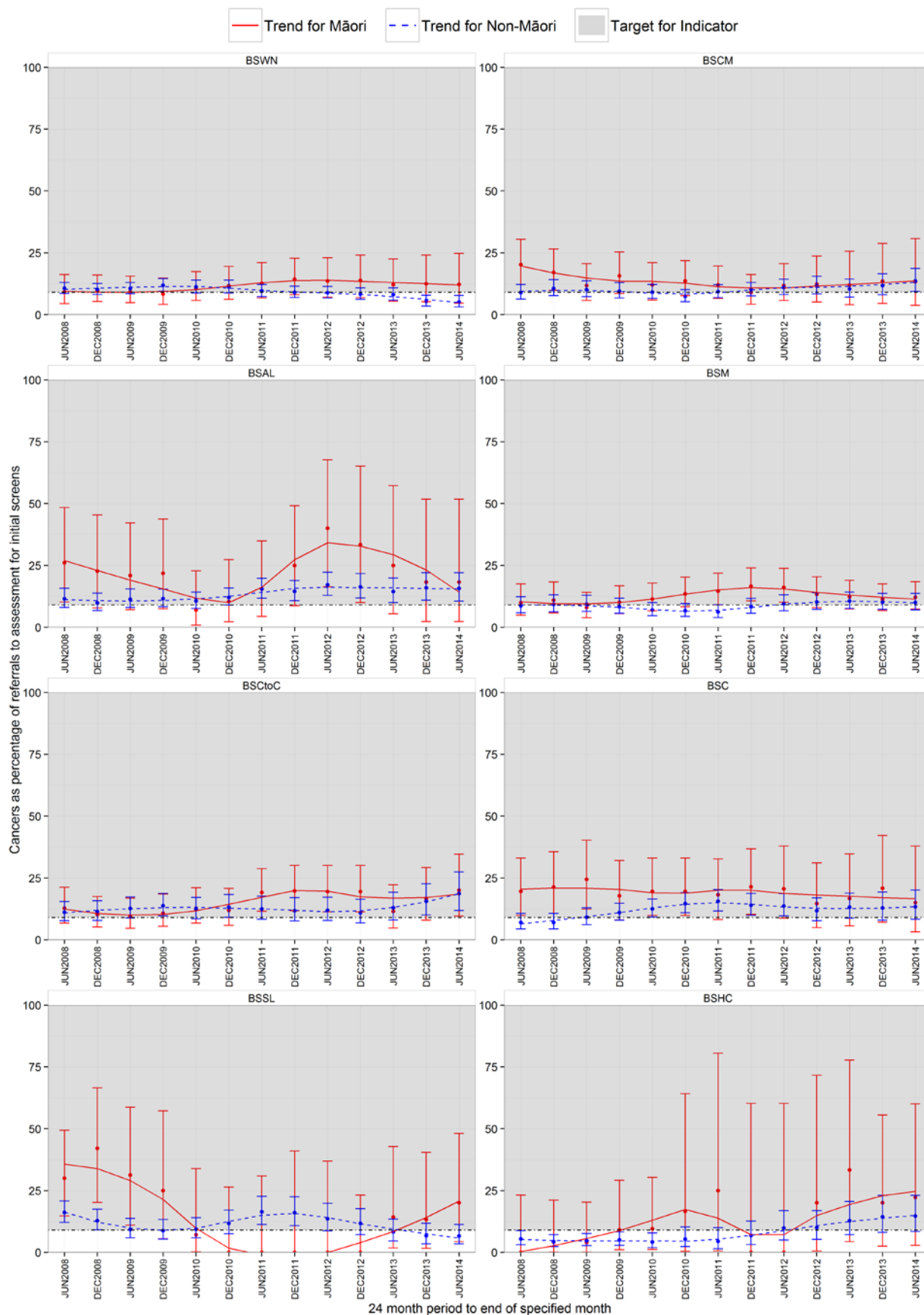
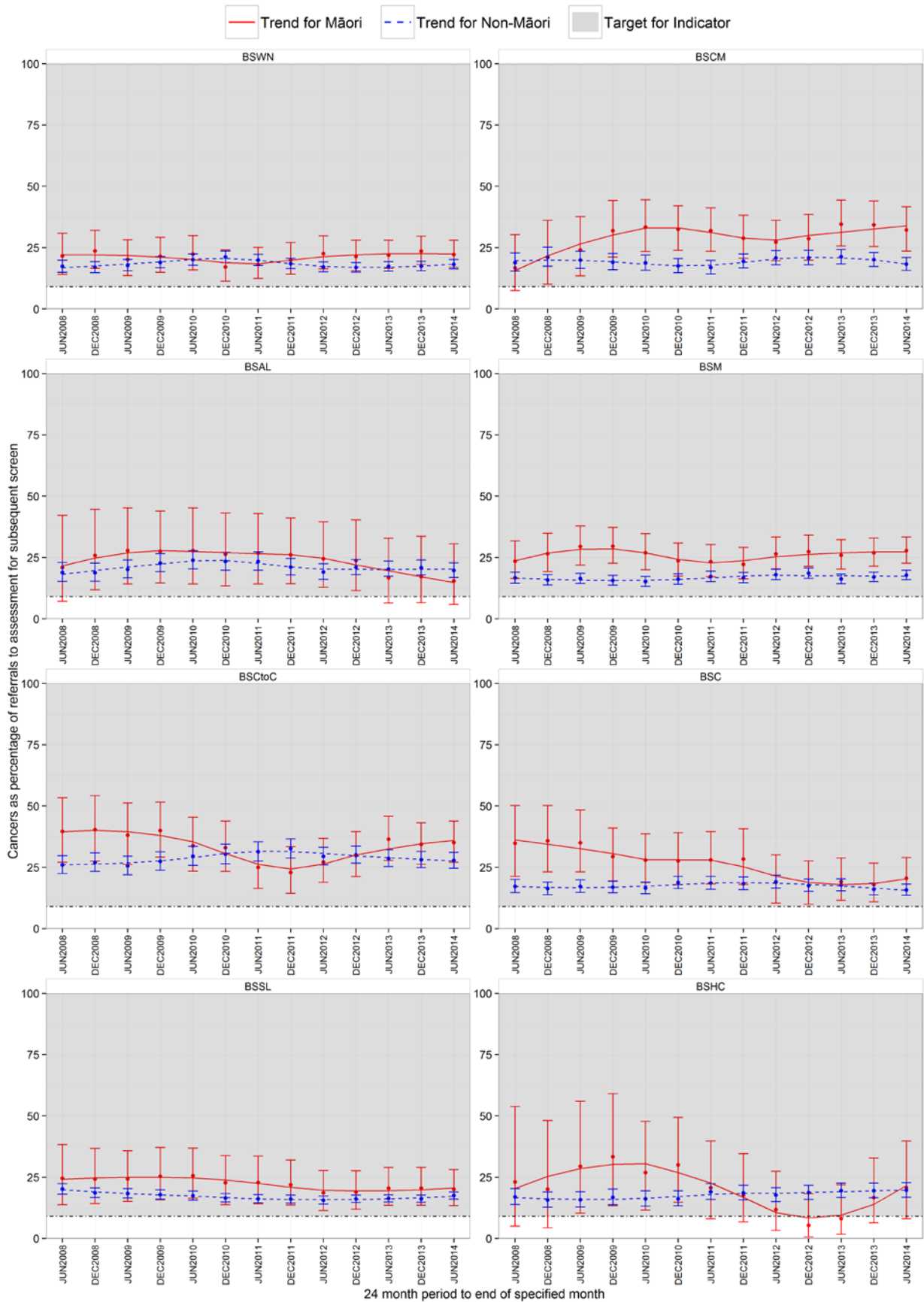


Figure 2f.2: Trends in the proportion of referrals to assessment that were diagnosed as breast cancer (DCIS and invasive) among Māori women aged 50–69 years having a subsequent screen



2g Benign biopsy weight

Description:

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

Target for women aged 50–69 years:

>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, 5 years (July 2009 to June 2014)

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)	
45–49 years							
BSWN	15	18	83.3 (58.6, 96.4)	79	89	88.8 (80.3, 94.5)	0.94 (0.75, 1.17)
BSCM	8	9	88.9 (51.8, 99.7)	39	45	86.7 (73.2, 94.9)	1.03 (0.79, 1.33)
BSAL	1	3	33.3 (0.8, 90.6)	35	40	87.5 (73.2, 95.8)	0.38 (0.08, 1.90)
BSM	12	18	66.7 (41.0, 86.7)	41	62	66.1 (53.0, 77.7)	1.01 (0.70, 1.46)
BSCtoC	2	2	100.0 (15.8, 100.0)	13	22	59.1 (36.4, 79.3)	1.69 (0.49, 2.22) #
BSC	0	0	- -	17	27	63.0 (42.4, 80.6)	- -
BSSL	8	10	80.0 (44.4, 97.5)	46	57	80.7 (68.1, 90.0)	0.99 (0.71, 1.39)
BSHC	2	2	100.0 (15.8, 100.0)	21	26	80.8 (60.6, 93.4)	1.24 (0.37, 1.43) #
Total BSA	48	62	77.4 (65.0, 87.1)	291	368	79.1 (74.6, 83.1)	0.98 (0.85, 1.13)
50–69 years							
BSWN	16	18	88.9 (65.3, 98.6)	126	149	84.6 (77.7, 90.0)	1.05 (0.88, 1.26)
BSCM	8	11	72.7 (39.0, 94.0)	59	74	79.7 (68.8, 88.2)	0.91 (0.62, 1.33)
BSAL	1	2	50.0 (1.3, 98.7)	39	44	88.6 (75.4, 96.2)	0.56 (0.14, 2.27)
BSM	16	23	69.6 (47.1, 86.8)	82	107	76.6 (67.5, 84.3)	0.91 (0.68, 1.21)
BSCtoC	7	8	87.5 (47.3, 99.7)	20	36	55.6 (38.1, 72.1)	1.58 (1.06, 2.33)
BSC	7	8	87.5 (47.3, 99.7)	38	46	82.6 (68.6, 92.2)	1.06 (0.79, 1.42)
BSSL	3	4	75.0 (19.4, 99.4)	67	91	73.6 (63.3, 82.3)	1.02 (0.57, 1.82)
BSHC	1	1	100.0 (2.5, 100.0)	40	51	78.4 (64.7, 88.7)	1.26 (0.20, 1.36) #
Total BSA	59	75	78.7 (67.7, 87.3)	471	598	78.8 (75.3, 82.0)	1.00 (0.88, 1.13)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Shaded boxes show confidence interval excludes target of >90%.

During the five-year period July 2009 to June 2014, there were 62 open biopsies among Māori women aged 45–49 years and 75 among those aged 50–69 years.

The proportions of open biopsies weighing less than 30g were similar for Māori and non-Māori women in both age groups, at just under 80%. These were below the target of 90% or more.

Table 2g.2: Distribution of open biopsies by weight, 5 years (July 2009 to June 2014)

Lead Provider	Māori					Non-Māori				
	<30g	30-49g	50-69g	≥70 g	Unknown weight	<30g	30-49g	50-69g	≥70 g	Unknown weight
45–49 years										
BSWN	83.3	11.1	0.0	5.6	0.0	88.8	6.7	1.1	0.0	3.4
BSCM	88.9	0.0	11.1	0.0	0.0	86.7	13.3	0.0	0.0	0.0
BSAL	33.3	33.3	33.3	0.0	0.0	87.5	12.5	0.0	0.0	0.0
BSM	66.7	11.1	22.2	0.0	0.0	66.1	24.2	3.2	4.8	1.6
BSCtoC	100.0	0.0	0.0	0.0	0.0	59.1	9.1	0.0	0.0	31.8
BSC	NaN	NaN	NaN	NaN	NaN	63.0	29.6	0.0	0.0	7.4
BSSL	80.0	10.0	10.0	0.0	0.0	80.7	14.0	3.5	1.8	0.0
BSHC	100.0	0.0	0.0	0.0	0.0	80.8	7.7	3.8	7.7	0.0
Total	77.4	9.7	11.3	1.6	0.0	79.1	14.1	1.6	1.6	3.5
50–69 years										
BSWN	88.9	0.0	5.6	0.0	5.6	84.6	8.7	0.7	2.7	3.4
BSCM	72.7	27.3	0.0	0.0	0.0	79.7	14.9	1.4	4.1	0.0
BSAL	50.0	0.0	0.0	50.0	0.0	88.6	9.1	2.3	0.0	0.0
BSM	69.6	13.0	8.7	8.7	0.0	76.6	12.1	5.6	3.7	1.9
BSCtoC	87.5	0.0	0.0	0.0	12.5	55.6	16.7	0.0	8.3	19.4
BSC	87.5	12.5	0.0	0.0	0.0	82.6	10.9	4.3	2.2	0.0
BSSL	75.0	25.0	0.0	0.0	0.0	73.6	20.9	3.3	2.2	0.0
BSHC	100.0	0.0	0.0	0.0	0.0	78.4	9.8	3.9	5.9	2.0
Total	78.7	10.7	4.0	4.0	2.7	78.8	12.7	2.7	3.3	2.5

Note there were no open biopsies among Māori women aged 45–49 years screened by BSC during this five-year period.

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 for women aged 50–69 years:

>90% (desired target)

>70% (expected target)

Table 2h: Percentage of women with a preoperative diagnosis of cancer, 2 years (July 2012 to June 2014)

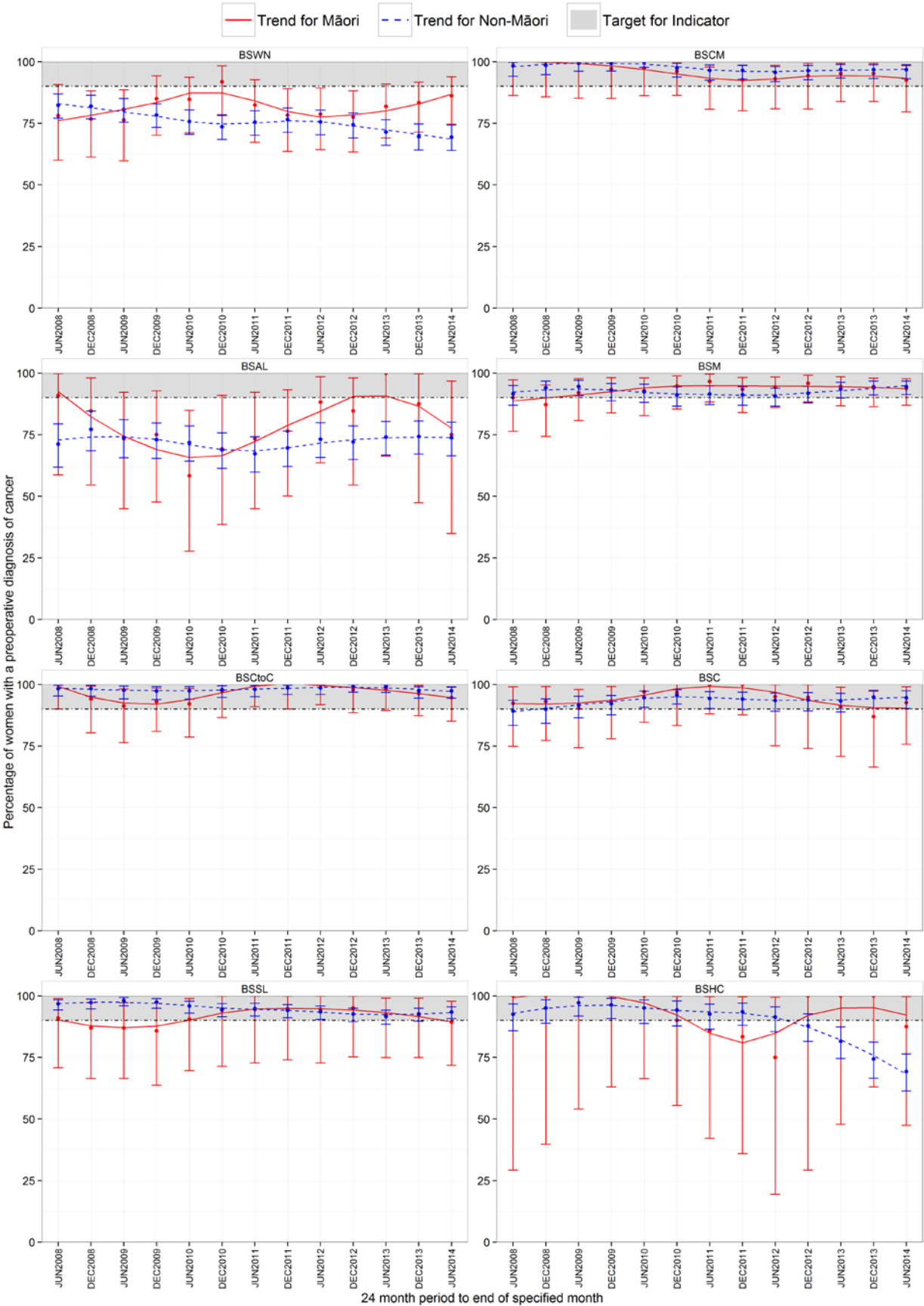
Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Number with pre-operative diagnosis of cancer	Number of cancers	% of cancers with a pre-operative diagnosis (95% CI)	Number with pre-operative diagnosis of cancer	Number of cancers	% of cancers with a pre-operative diagnosis (95% CI)	
45–49 years							
BSWN	8	11	72.7 (39.0, 94.0)	47	75	62.7 (50.7, 73.6)	1.16 (0.78, 1.73)
BSCM	11	11	100.0 (71.5, 100.0)	42	47	89.4 (76.9, 96.5)	1.12 (0.83, 1.24) #
BSAL	3	6	50.0 (11.8, 88.2)	31	43	72.1 (56.3, 84.7)	0.69 (0.31, 1.58)
BSM	14	14	100.0 (76.8, 100.0)	43	48	89.6 (77.3, 96.5)	1.12 (0.87, 1.24)#
BSCtoC	16	16	100.0 (79.4, 100.0)	38	40	95.0 (83.1, 99.4)	1.05 (0.86, 1.16)#
BSC	5	5	100.0 (47.8, 100.0)	45	48	93.8 (82.8, 98.7)	1.07 (0.59, 1.13)#
BSSL	14	15	93.3 (68.1, 99.8)	93	104	89.4 (81.9, 94.6)	1.04 (0.90, 1.21)
BSHC	3	4	75.0 (19.4, 99.4)	22	37	59.5 (42.1, 75.2)	1.26 (0.68, 2.36)
Total	74	82	90.2 (81.7, 95.7)	361	442	81.7 (77.7, 85.2)	1.10 (1.02, 1.20)
50–69 years							
BSWN	50	58	86.2 (74.6, 93.9)	222	320	69.4 (64.0, 74.4)	1.24 (1.10, 1.41)
BSCM	37	40	92.5 (79.6, 98.4)	180	186	96.8 (93.1, 98.8)	0.96 (0.87, 1.05)
BSAL	6	8	75.0 (34.9, 96.8)	126	171	73.7 (66.4, 80.1)	1.02 (0.68, 1.53)
BSM	90	96	93.8 (86.9, 97.7)	291	308	94.5 (91.3, 96.8)	0.99 (0.94, 1.05)
BSCtoC	53	56	94.6 (85.1, 98.9)	223	229	97.4 (94.4, 99.0)	0.97 (0.91, 1.04)
BSC	25	27	92.6 (75.7, 99.1)	174	184	94.6 (90.2, 97.4)	0.98 (0.88, 1.10)
BSSL	25	28	89.3 (71.8, 97.7)	427	457	93.4 (90.8, 95.5)	0.96 (0.84, 1.09)
BSHC	7	8	87.5 (47.3, 99.7)	108	156	69.2 (61.4, 76.4)	1.26 (0.95, 1.68)
Total	293	321	91.3 (87.6, 94.1)	1,751	2,011	87.1 (85.5, 88.5)	1.05 (1.01, 1.09)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Of the 82 Māori women aged 45–49 years who were diagnosed with breast cancer, 90% had their definitive pre-operative diagnosis from a needle biopsy, compared to 82% of non-Māori women.

Among women aged 50–69 years, 91% of Māori and 87% of non-Māori women had a pre-operative diagnosis.

Figure 2h: Trends in the percentage of Māori women aged 50–69 years with a preoperative diagnosis of cancer (DCIS and invasive)



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 for women aged 50–69 years:

>93%

Table 2I.1: Estimated specificity of BSA by Lead provider, by type of screen (initial and subsequent), 2 years (July 2012 to June 2014), women aged 45–49 years

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (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)	
Initial screens							
BSWN	855	965	88.6 (86.4, 90.5)	7,010	7,702	91.0 (90.4, 91.6)	0.97 (0.95, 1.00)
BSCM	791	861	91.9 (89.8, 93.6)	5,164	5,493	94.0 (93.4, 94.6)	0.98 (0.96, 1.00)
BSAL	339	355	95.5 (92.8, 97.4)	4,852	5,184	93.6 (92.9, 94.2)	1.02 (1.00, 1.04)
BSM	1,413	1,594	88.6 (87.0, 90.2)	5,693	6,281	90.6 (89.9, 91.3)	0.98 (0.96, 1.00)
BSCtoC	957	1,039	92.1 (90.3, 93.7)	4,231	4,470	94.7 (94.0, 95.3)	0.97 (0.95, 0.99)
BSC	540	569	94.9 (92.8, 96.6)	4,780	5,088	93.9 (93.3, 94.6)	1.01 (0.99, 1.03)
BSSL	612	690	88.7 (86.1, 91.0)	8,058	8,856	91.0 (90.4, 91.6)	0.97 (0.95, 1.00)
BSHC	279	296	94.3 (91.0, 96.6)	3,771	4,035	93.5 (92.6, 94.2)	1.01 (0.98, 1.04)
Total BSA	5,786	6,369	90.8 (90.1, 91.5)	43,559	47,109	92.5 (92.2, 92.7)	0.98 (0.97, 0.99)
Subsequent screens							
BSWN	1,131	1,174	96.3 (95.1, 97.3)	9,000	9,430	95.4 (95.0, 95.9)	1.01 (1.00, 1.02)
BSCM	810	834	97.1 (95.7, 98.1)	6,052	6,263	96.6 (96.2, 97.1)	1.01 (0.99, 1.02)
BSAL	388	396	98.0 (96.1, 99.1)	5,751	5,921	97.1 (96.7, 97.5)	1.01 (0.99, 1.02)
BSM	1,153	1,191	96.8 (95.6, 97.7)	5,908	6,202	95.3 (94.7, 95.8)	1.02 (1.00, 1.03)
BSCtoC	1,147	1,170	98.0 (97.1, 98.7)	6,222	6,355	97.9 (97.5, 98.2)	1.00 (0.99, 1.01)
BSC	565	577	97.9 (96.4, 98.9)	5,419	5,620	96.4 (95.9, 96.9)	1.02 (1.00, 1.03)
BSSL	812	854	95.1 (93.4, 96.4)	12,822	13,436	95.4 (95.1, 95.8)	1.00 (0.98, 1.01)
BSHC	228	235	97.0 (94.0, 98.8)	3,529	3,643	96.9 (96.3, 97.4)	1.00 (0.98, 1.03)
Total BSA	6,234	6,431	96.9 (96.5, 97.3)	54,703	56,870	96.2 (96.0, 96.3)	1.01 (1.00, 1.01)

*RRS=return to routine screening. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Specificity was lower for Māori women aged 45–49 years having initial screens compared to those having subsequent screens.

Table 21.2: Estimated specificity of BSA by Lead provider, by type of screen (initial and subsequent), 2 years (July 2012 to June 2014), women aged 50–69 years

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (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)	
Initial screens							
BSWN	299	341	87.7 (83.7, 91.0)	2,996	3,354	89.3 (88.2, 90.4)	0.98 (0.94, 1.02)
BSCM	284	308	92.2 (88.6, 94.9)	2,597	2,775	93.6 (92.6, 94.5)	0.99 (0.95, 1.02)
BSAL	147	156	94.2 (89.3, 97.3)	2,646	2,787	94.9 (94.1, 95.7)	0.99 (0.95, 1.03)
BSM	915	1,041	87.9 (85.8, 89.8)	3,085	3,383	91.2 (90.2, 92.1)	0.96 (0.94, 0.99)
BSCtoC	496	530	93.6 (91.2, 95.5)	1,781	1,866	95.4 (94.4, 96.3)	0.98 (0.96, 1.00)
BSC	194	211	91.9 (87.4, 95.2)	1,992	2,114	94.2 (93.1, 95.2)	0.98 (0.94, 1.02)
BSSL	113	125	90.4 (83.8, 94.9)	1,658	1,824	90.9 (89.5, 92.2)	0.99 (0.94, 1.05)
BSHC	67	73	91.8 (83.0, 96.9)	1,157	1,240	93.3 (91.8, 94.6)	0.98 (0.92, 1.06)
Total BSA	2,515	2,785	90.3 (89.1, 91.4)	17,912	19,343	92.6 (92.2, 93.0)	0.98 (0.96, 0.99)
Subsequent screens							
BSWN	5,381	5,561	96.8 (96.3, 97.2)	48,296	49,620	97.3 (97.2, 97.5)	0.99 (0.99, 1.00)
BSCM	3,574	3,648	98.0 (97.5, 98.4)	29,039	29,720	97.7 (97.5, 97.9)	1.00 (1.00, 1.01)
BSAL	1,736	1,768	98.2 (97.5, 98.8)	26,794	27,365	97.9 (97.7, 98.1)	1.00 (1.00, 1.01)
BSM	6,757	6,956	97.1 (96.7, 97.5)	43,108	44,355	97.2 (97.0, 97.3)	1.00 (1.00, 1.00)
BSCtoC	6,006	6,092	98.6 (98.3, 98.9)	41,323	41,847	98.7 (98.6, 98.9)	1.00 (1.00, 1.00)
BSC	2,748	2,838	96.8 (96.1, 97.4)	32,553	33,423	97.4 (97.2, 97.6)	0.99 (0.99, 1.00)
BSSL	3,241	3,340	97.0 (96.4, 97.6)	67,236	69,326	97.0 (96.9, 97.1)	1.00 (0.99, 1.01)
BSHC	1,074	1,095	98.1 (97.1, 98.8)	25,587	26,149	97.9 (97.7, 98.0)	1.00 (0.99, 1.01)
Total BSA	30,517	31,298	97.5 (97.3, 97.7)	313,936	321,805	97.6 (97.5, 97.6)	1.00 (1.00, 1.00)

Shaded boxes show confidence interval excludes target of >93%.

*RRS=return to routine screening

Overall, specificity for Māori women having an initial screen was just under target at 90%. BSWN and BSM showed the lowest specificity at 88% each.

All LPs met the target value of >93% estimated specificity for Māori and non-Māori women having subsequent screens.

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 for women aged 50–69 years:

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

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

Table 2m.1: Benign open biopsies as a proportion of women screened, aged 45–49 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Benign open biopsies	Number of women screened	Benign biopsies per 1,000 women screened (95% CI)	Benign open biopsies	Number of women screened	Benign biopsies per 1,000 women screened (95% CI)	
Initial screen							
BSWN	0	976	0.0 (0.0, 3.8)	20	7,764	2.6 (1.6, 4.0)	0.00 (0.00, 1.61)
BSCM	0	866	0.0 (0.0, 4.3)	13	5,536	2.3 (1.3, 4.0)	0.00 (0.00, 2.10)
BSAL	0	358	0.0 (0.0, 10.3)	8	5,214	1.5 (0.7, 3.0)	0.00 (0.00, 8.53)
BSM	7	1,608	4.4 (1.8, 8.9)	19	6,318	3.0 (1.8, 4.7)	1.45 (0.61, 3.44)
BSCtoC	1	1,054	0.9 (0.0, 5.3)	5	4,498	1.1 (0.4, 2.6)	0.85 (0.10, 7.30)
BSC	0	570	0.0 (0.0, 6.5)	7	5,115	1.4 (0.6, 2.8)	0.00 (0.00, 6.23)
BSSL	5	699	7.2 (2.3, 16.6)	16	8,907	1.8 (1.0, 2.9)	3.98 (1.46, 10.84)
BSHC	0	298	0.0 (0.0, 12.3)	9	4,067	2.2 (1.0, 4.2)	0.00 (0.00, 6.91)
Total BSA	13	6,429	2.0 (1.1, 3.5)	97	47,419	2.0 (1.7, 2.5)	0.99 (0.55, 1.76)
Subsequent screen							
BSWN	2	1,179	1.7 (0.2, 6.1)	15	9,462	1.6 (0.9, 2.6)	1.07 (0.25, 4.67)
BSCM	1	842	1.2 (0.0, 6.6)	9	6,283	1.4 (0.7, 2.7)	0.83 (0.11, 6.54)
BSAL	0	400	0.0 (0.0, 9.2)	3	5,950	0.5 (0.1, 1.5)	0.00 (0.00, 36.00)
BSM	1	1,196	0.8 (0.0, 4.6)	8	6,225	1.3 (0.6, 2.5)	0.65 (0.08, 5.20)
BSCtoC	0	1,174	0.0 (0.0, 3.1)	2	6,370	0.3 (0.0, 1.1)	0.00 (0.00, 28.89)
BSC	0	581	0.0 (0.0, 6.3)	4	5,648	0.7 (0.2, 1.8)	0.00 (0.00, 14.73)
BSSL	2	860	2.3 (0.3, 8.4)	10	13,502	0.7 (0.4, 1.4)	3.14 (0.69, 14.31)
BSHC	0	237	0.0 (0.0, 15.4)	5	3,650	1.4 (0.4, 3.2)	0.00 (0.00, 16.81)
Total BSA	6	6,469	0.9 (0.3, 2.0)	56	57,090	1.0 (0.7, 1.3)	0.95 (0.41, 2.19)

Ratios above one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

There were low numbers of open biopsies among Māori women aged 45–49 years during this two-year period: 13 among those having an initial screen and 6 among those having a subsequent screen.

The benign open biopsy rate was similar for Māori and non-Māori women.

Table 2m.2: Benign open biopsies as a proportion of women screened, aged 50–69 years, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Benign open biopsies	Number of women screened	Benign biopsies per 1,000 women screened (95% CI)	Benign open biopsies	Number of women screened	Benign biopsies per 1,000 women screened (95% CI)	
Initial screen							
BSWN	4	348	11.5 (3.1, 29.2)	10	3,389	3.0 (1.4, 5.4)	3.90 (1.23, 12.36)
BSCM	0	314	0.0 (0.0, 11.7)	5	2,826	1.8 (0.6, 4.1)	0.00 (0.00, 9.82)
BSAL	0	158	0.0 (0.0, 23.1)	2	2,818	0.7 (0.1, 2.6)	0.00 (0.00, 94.97)
BSM	6	1,064	5.6 (2.1, 12.2)	11	3,425	3.2 (1.6, 5.7)	1.76 (0.65, 4.74)
BSCtoC	1	541	1.8 (0.0, 10.3)	2	1,888	1.1 (0.1, 3.8)	1.74 (0.16, 19.21)
BSC	1	214	4.7 (0.1, 25.8)	2	2,134	0.9 (0.1, 3.4)	4.99 (0.45, 54.76)
BSSL	0	128	0.0 (0.0, 28.4)	13	1,839	7.1 (3.8, 12.1)	0.00 (0.00, 4.71)
BSHC	1	76	13.2 (0.3, 71.1)	7	1,259	5.6 (2.2, 11.4)	2.37 (0.29, 18.99)
Total BSA	13	2,843	4.6 (2.4, 7.8)	52	19,578	2.7 (2.0, 3.5)	1.72 (0.94, 3.16)
Subsequent screen							
BSWN	3	5,616	0.5 (0.1, 1.6)	50	49,948	1.0 (0.7, 1.3)	0.53 (0.17, 1.71)
BSCM	2	3,686	0.5 (0.1, 2.0)	25	29,891	0.8 (0.5, 1.2)	0.65 (0.15, 2.74)
BSAL	0	1,775	0.0 (0.0, 2.1)	10	27,525	0.4 (0.2, 0.7)	0.00 (0.00, 6.92)
BSM	8	7,038	1.1 (0.5, 2.2)	25	44,648	0.6 (0.4, 0.8)	2.03 (0.92, 4.50)
BSCtoC	1	6,140	0.2 (0.0, 0.9)	16	42,076	0.4 (0.2, 0.6)	0.43 (0.06, 3.23)
BSC	3	2,865	1.0 (0.2, 3.1)	16	33,599	0.5 (0.3, 0.8)	2.20 (0.64, 7.54)
BSSL	3	3,366	0.9 (0.2, 2.6)	35	69,786	0.5 (0.3, 0.7)	1.78 (0.55, 5.78)
BSHC	0	1,103	0.0 (0.0, 3.3)	19	26,305	0.7 (0.4, 1.1)	0.00 (0.00, 5.11)
Total BSA	20	31,589	0.6 (0.4, 1.0)	196	323,778	0.6 (0.5, 0.7)	1.05 (0.66, 1.66)

Ratios above one are unfavourable to Māori. The targets are ≤ 3.5 per 1,000 women having initial screens and ≤ 1.6 per 1,000 women having subsequent screens.

The targets for open biopsies that turned out to be benign lesions were met or were within the confidence interval for both Māori and non-Māori women aged 50–69 years having initial or subsequent screens.

SECTION 3: EARLY DETECTION OF DCIS OR INVASIVE BREAST CANCER

3a.1 Detection of DCIS or invasive breast cancer

Description:

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

Table 3a.1a: Detection rate of DCIS and invasive breast cancer per 1,000 screens, aged 45–49 years, 2 years (July 2012 to June 2014)

Lead provider	Māori		Non-Māori		Māori/non-Māori ratio (95% CI)
	Number with breast cancer	Rate per 1,000 screens(95% CI)	Number with breast cancer	Rate per 1,000 screens (95% CI)	
Initial screen					
BSWN	9	9.1 (4.2, 17.2)	45	5.7 (4.2, 7.7)	1.59 (0.78, 3.23)
BSCM	4	4.6 (1.2, 11.6)	30	5.3 (3.6, 7.6)	0.85 (0.30, 2.42)
BSAL	3	7.9 (1.6, 23.0)	21	3.8 (2.4, 5.8)	2.09 (0.62, 6.96)
BSM	10	6.1 (2.9, 11.3)	30	4.7 (3.2, 6.7)	1.31 (0.64, 2.68)
BSCtoC	13	11.6 (6.2, 19.7)	25	5.2 (3.4, 7.7)	2.21 (1.13, 4.30)
BSC	1	1.8 (0.0, 9.7)	25	4.9 (3.2, 7.2)	0.36 (0.05, 2.65)
BSSL	9	12.5 (5.7, 23.6)	44	4.8 (3.5, 6.4)	2.61 (1.28, 5.33)
BSHC	2	6.7 (0.8, 23.9)	30	7.2 (4.9, 10.3)	0.92 (0.22, 3.85)
Total BSA	51	7.7 (5.8, 10.2)	250	5.1 (4.5, 5.8)	1.51 (1.12, 2.03)
Subsequent screen					
BSWN	2	1.7 (0.2, 6.0)	30	3.2 (2.1, 4.5)	0.53 (0.13, 2.22)
BSCM	7	8.2 (3.3, 16.7)	17	2.6 (1.5, 4.2)	3.08 (1.28, 7.40)
BSAL	3	7.1 (1.5, 20.5)	22	3.4 (2.2, 5.2)	2.05 (0.62, 6.84)
BSM	4	3.3 (0.9, 8.3)	18	2.8 (1.7, 4.5)	1.15 (0.39, 3.40)
BSCtoC	3	2.4 (0.5, 7.1)	15	2.2 (1.2, 3.6)	1.10 (0.32, 3.79)
BSC	4	6.9 (1.9, 17.5)	23	4.1 (2.6, 6.1)	1.69 (0.59, 4.88)
BSSL	6	6.8 (2.5, 14.7)	60	4.3 (3.3, 5.5)	1.58 (0.68, 3.65)
BSHC	2	8.2 (1.0, 29.4)	7	1.9 (0.7, 3.8)	4.42 (0.92, 21.17)
Total BSA	31	4.7 (3.2, 6.6)	192	3.3 (2.8, 3.8)	1.43 (0.98, 2.09)

A ratio above 1.0 shows Māori have a higher rate of screen-detected cancer than non-Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Māori women aged 45–49 years were 50% more likely than non-Māori women to have breast cancer detected on their initial screen. There were 51 cancers detected among Māori women having their first screen with BSA.

Among Māori women in this age group having a subsequent screen, 31 had a cancer detected. Māori women were around 40% more likely than non-Māori to have a cancer detected but this was not statistically significant.

Table 3a.1b: Detection rate of DCIS and invasive breast cancer per 1,000 screens, aged 50–69 years, 2 years (July 2012 to June 2014)

Lead provider	Māori		Non-Māori		Māori/non-Māori ratio (95% CI)
	Number with breast cancer	Rate per 1,000 screens (95% CI)	Number with breast cancer	Rate per 1,000 screens (95% CI)	
Initial screen					
BSWN	6	17.2 (6.3, 37.0)	20	5.9 (3.6, 9.0)	2.93 (1.19, 7.26)
BSCM	4	12.6 (3.4, 32.0)	31	10.8 (7.4, 15.3)	1.17 (0.41, 3.28)
BSAL	2	11.8 (1.4, 42.1)	27	9.1 (6.0, 13.2)	1.30 (0.31, 5.43)
BSM	18	16.8 (10.0, 26.5)	34	9.8 (6.8, 13.7)	1.72 (0.97, 3.03)
BSCtoC	9	15.5 (7.1, 29.2)	20	10.0 (6.1, 15.4)	1.55 (0.71, 3.39)
BSC	3	14.0 (2.9, 40.2)	19	8.9 (5.4, 13.8)	1.57 (0.47, 5.27)
BSSL	3	23.1 (4.8, 66.0)	12	6.4 (3.3, 11.1)	3.62 (1.03, 12.66)
BSHC	2	25.6 (3.1, 89.6)	15	11.7 (6.6, 19.3)	2.18 (0.51, 9.38)
Total BSA	47	16.2 (11.9, 21.4)	178	8.9 (7.6, 10.3)	1.82 (1.32, 2.50)
Subsequent screen					
BSWN	52	9.2 (6.9, 12.0)	300	6.0 (5.3, 6.7)	1.54 (1.15, 2.06)
BSCM	36	9.6 (6.7, 13.3)	155	5.1 (4.3, 6.0)	1.88 (1.31, 2.70)
BSAL	6	3.2 (1.2, 7.0)	144	4.9 (4.2, 5.8)	0.66 (0.29, 1.48)
BSM	78	10.8 (8.5, 13.5)	274	6.0 (5.3, 6.7)	1.81 (1.41, 2.32)
BSCtoC	47	7.3 (5.4, 9.7)	209	4.7 (4.1, 5.4)	1.55 (1.13, 2.12)
BSC	24	8.3 (5.4, 12.4)	165	4.9 (4.2, 5.7)	1.71 (1.11, 2.61)
BSSL	25	7.2 (4.7, 10.6)	445	6.2 (5.6, 6.8)	1.17 (0.78, 1.74)
BSHC	6	5.3 (1.9, 11.5)	141	5.2 (4.4, 6.2)	1.01 (0.45, 2.28)
Total BSA	274	8.5 (7.5, 9.5)	1,833	5.5 (5.3, 5.8)	1.53 (1.35, 1.74)

A ratio above 1.0 shows Māori have a higher rate of screen-detected cancer than non-Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among Māori women aged 50–69 years having an initial screen there were 47 cancers detected, a similar number to those detected in the 45–49 year age group, but at a rate twice as high (16 per 1000 screens compared to 8 per 1000 screens at age 45–49).

Māori women having an initial screen were 80% more likely than non-Māori women to have a cancer detected.

From subsequent screens, 274 breast cancers were detected among Māori women. The detection rate was 50% higher for Māori than for non-Māori women.

Figure 3a.1a: Trends in the detection rate of DCIS and invasive breast cancer among Māori women aged 50–69 years having an initial screen

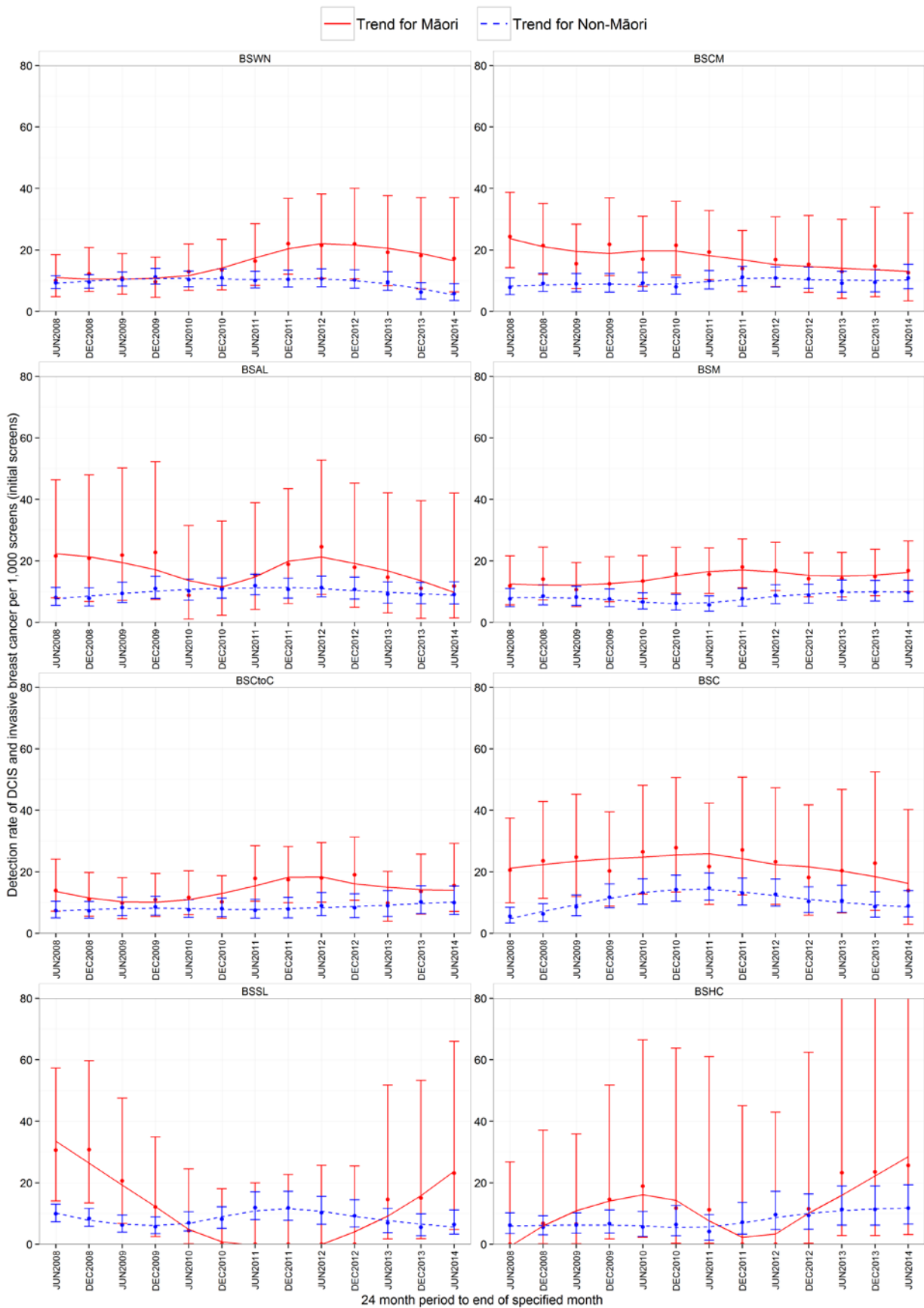
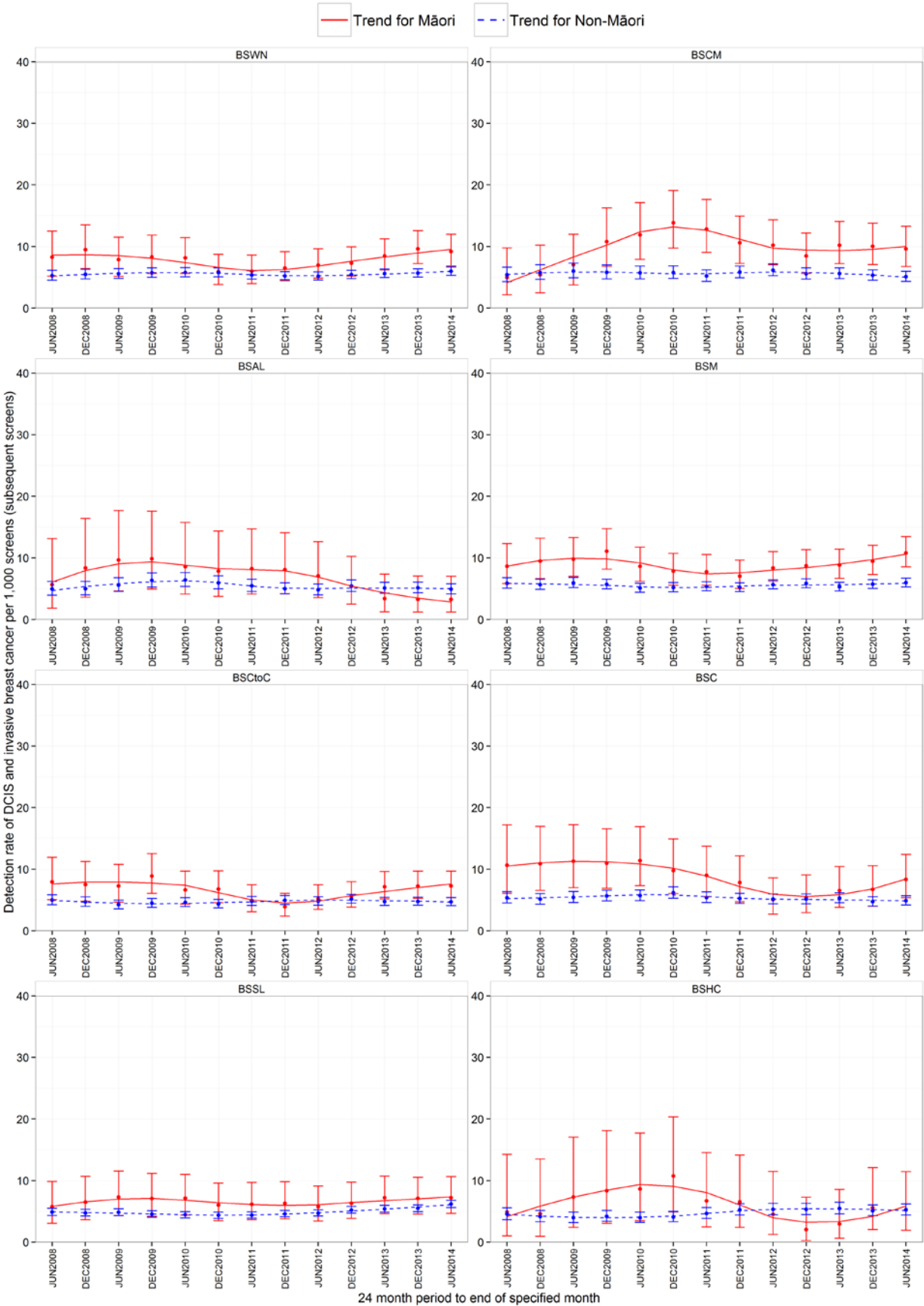


Figure 3a.1b: Trends in the detection rate of DCIS and invasive breast cancer among Māori women aged 50–69 years having a subsequent screen



3a.2 Detection of invasive breast cancer

Description:

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

Target for women aged 50–69 years:

Initial (prevalent) round: ≥ 6.1 per 1,000 screens

Subsequent (incident) round: ≥ 3.45 per 1,000 screens

Table 3a.2a: Detection rate of invasive breast cancer per 1,000 screens, aged 45–49 years, 2 years (July 2012 to June 2014)

Lead provider	Māori		Non-Māori		Māori/non-Māori ratio (95% CI)
	Number with breast cancer	Rate per 1,000 screens (95% CI)	Number with breast cancer	Rate per 1,000 screens (95% CI)	
Initial screen					
BSWN	7	7.1 (2.9, 14.6)	31	4.0 (2.7, 5.6)	1.79 (0.79, 4.06)
BSCM	2	2.3 (0.3, 8.2)	21	3.7 (2.3, 5.7)	0.61 (0.14, 2.59)
BSAL	1	2.6 (0.1, 14.7)	15	2.7 (1.5, 4.5)	0.97 (0.13, 7.35)
BSM	7	4.3 (1.7, 8.8)	22	3.4 (2.2, 5.2)	1.25 (0.54, 2.93)
BSCtoC	8	7.1 (3.1, 14.0)	16	3.4 (1.9, 5.4)	2.12 (0.91, 4.95)
BSC	1	1.8 (0.0, 9.7)	20	3.9 (2.4, 6.0)	0.45 (0.06, 3.35)
BSSL	8	11.1 (4.8, 21.8)	26	2.8 (1.8, 4.1)	3.93 (1.78, 8.64)
BSHC	0	0.0 (0.0, 12.2)	19	4.6 (2.8, 7.1)	0.00 (0.00, 2.97)
Total	34	5.2 (3.6, 7.2)	170	3.5 (3.0, 4.1)	1.48 (1.02, 2.13)
Subsequent screen					
BSWN	2	1.7 (0.2, 6.0)	24	2.5 (1.6, 3.7)	0.66 (0.16, 2.81)
BSCM	5	5.8 (1.9, 13.5)	13	2.0 (1.1, 3.5)	2.88 (1.03, 8.05)
BSAL	2	4.7 (0.6, 16.9)	12	1.9 (1.0, 3.3)	2.51 (0.56, 11.18)
BSM	2	1.6 (0.2, 5.9)	14	2.2 (1.2, 3.7)	0.74 (0.17, 3.25)
BSCtoC	3	2.4 (0.5, 7.1)	11	1.6 (0.8, 2.9)	1.50 (0.42, 5.37)
BSC	3	5.2 (1.1, 15.0)	18	3.2 (1.9, 5.0)	1.62 (0.48, 5.49)
BSSL	3	3.4 (0.7, 9.9)	46	3.3 (2.4, 4.4)	1.03 (0.32, 3.31)
BSHC	2	8.2 (1.0, 29.4)	3	0.8 (0.2, 2.3)	10.32 (1.73, 61.46)
Total	22	3.3 (2.1, 5.0)	141	2.4 (2.0, 2.8)	1.38 (0.88, 2.16)

A ratio above 1.0 shows Māori have a higher rate of screen-detected cancer than non-Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Of the 51 breast cancers detected among Māori women aged 45–49 years having an initial screen, 34 were invasive. Māori women were nearly 50% more likely than non-Māori women to have an invasive cancer detected on their initial screen.

Among Māori women in this age group who had a subsequent screen, 22 of the 31 cancers detected were invasive. The invasive cancer detection rate from subsequent screens was not significantly higher for Māori than non-Māori in this age group.

Table 3a.2b: Detection rate of invasive breast cancer per 1,000 screens, aged 50–69 years, 2 years (July 2012 to June 2014)

Lead provider	Māori		Non-Māori		Māori/non-Māori ratio (95% CI)
	Number with breast cancer	Rate per 1,000 screens (95% CI)	Number with breast cancer	Rate per 1,000 screens (95% CI)	
Initial screen					
BSWN	4	11.5(3.1, 29.1)	11	3.2 (1.6, 5.8)	3.56(1.14, 11.11)
BSCM	2	6.3(0.8, 22.6)	22	7.7 (4.8, 11.6)	0.82(0.19, 3.48)
BSAL	0	0.0(0.0, 21.6)	24	8.1 (5.2, 12.0)	0.00(0.00, 2.92)
BSM	12	11.2(5.8, 19.5)	29	8.4 (5.6, 12.0)	1.34(0.69, 2.62)
BSCtoC	5	8.6(2.8, 20.0)	14	7.0 (3.8, 11.7)	1.23(0.45, 3.41)
BSC	2	9.3(1.1, 33.2)	17	7.9 (4.6, 12.7)	1.17(0.27, 5.03)
BSSL	1	7.7(0.2, 42.1)	10	5.3 (2.6, 9.8)	1.45(0.19, 11.22)
BSHC	2	25.6(3.1, 89.6)	9	7.0 (3.2, 13.3)	3.64(0.80, 16.55)
Total BSA	28	9.6(6.4, 13.9)	136	6.8 (5.7, 8.0)	1.42(0.95, 2.12)
Subsequent screen					
BSWN	36	6.3(4.5, 8.8)	224	4.5 (3.9, 5.1)	1.43(1.00, 2.02)
BSCM	31	8.3(5.6, 11.7)	106	3.5 (2.9, 4.2)	2.37(1.59, 3.53)
BSAL	5	2.7(0.9, 6.3)	98	3.4 (2.7, 4.1)	0.80(0.33, 1.97)
BSM	65	9.0(6.9, 11.5)	210	4.6 (4.0, 5.2)	1.97(1.49, 2.60)
BSCtoC	32	5.0(3.4, 7.0)	152	3.4 (2.9, 4.0)	1.45(0.99, 2.12)
BSC	16	5.6(3.2, 9.0)	117	3.5 (2.9, 4.2)	1.60(0.95, 2.70)
BSSL	21	6.1(3.8, 9.3)	343	4.8 (4.3, 5.3)	1.27(0.82, 1.97)
BSHC	5	4.4(1.4, 10.2)	118	4.4 (3.6, 5.3)	1.00(0.41, 2.45)
Total BSA	211	6.5(5.7, 7.4)	1,368	4.1 (3.9, 4.3)	1.58(1.37, 1.83)

Ratios above 1 mean Māori have higher rates of screen detected cancer than non-Māori. Target values are ≥ 6.1 per 1,000 initial screens and ≥ 3.45 per 1,000 in subsequent screens.

The invasive breast cancer detection target value was met for Māori and non-Māori women aged 50–69 years having an initial or subsequent screen.

Among Māori women having an initial screen, 28 of the 47 breast cancers detected were invasive. The invasive cancer detection rate was 40% higher for Māori than for non-Māori women but this was not statistically significant.

Among Māori women having a subsequent screen, 211 of the 274 cancers detected were invasive. The invasive cancer detection rate was nearly 60% higher for Māori than for non-Māori women.

3a.3 Summary of referral to assessment, specificity, false positives and detection rate of DCIS and invasive cancer

Table 3a.3a: Summary of Referral to Assessment, Specificity, False Positives and Detection Rate of DCIS and Invasive Cancer, women aged 50–69 years, 2 years (July 2012 to June 2014)

Lead Provider	Māori				Non-Māori			
	Referral to assessment as % of women screened	Estimated specificity %	Positive Predictive Value %	Detection rate per 1,000 screens	Referral to assessment as % of women screened	Estimated Specificity %	Positive Predictive Value %	Detection rate per 1,000 screens
Initial screens								
BSWN	14.1	87.7	12.2	17.2	11.6	89.3	5.1	5.9
BSCM	9.6	92.2	13.3	12.6	8.1	93.6	13.5	10.8
BSAL	7.0	94.2	18.2	11.8	6.1	94.9	15.7	9.1
BSM	14.0	87.9	12.1	16.8	9.9	91.2	10.0	9.8
BSCtoC	8.3	93.6	20.0	15.5	5.7	95.4	18.7	10.0
BSC	9.3	91.9	15.0	14.0	6.7	94.2	13.4	8.9
BSSL	11.7	90.4	20.0	23.1	9.8	90.9	6.6	6.4
BSHC	11.8	91.8	22.2	25.6	8.1	93.3	14.7	11.7
BSA Total	11.5	90.3	14.3	16.2	8.5	92.6	10.7	8.9
Subsequent screens								
BSWN	4.2	96.8	22.1	9.2	3.3	97.3	18.2	6.0
BSCM	3.0	98.0	32.1	9.6	2.9	97.7	18.2	5.1
BSAL	2.2	98.2	15.4	3.2	2.7	97.9	19.7	4.9
BSM	4.0	97.1	27.8	10.8	3.4	97.2	17.8	6.0
BSCtoC	2.2	98.6	35.1	7.3	1.8	98.7	27.8	4.7
BSC	4.1	96.8	20.5	8.3	3.1	97.4	15.8	4.9
BSSL	3.7	97.0	20.0	7.2	3.7	97.0	17.5	6.2
BSHC	2.6	98.1	20.7	5.3	2.7	97.9	19.6	5.2
BSA Total	3.4	97.5	25.6	8.5	3.0	97.6	18.6	5.5

The summary tables 3a.3a and 3a.3b 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 presented in Table 2d.2. 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%.

Estimated specificity

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

Positive predictive value

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

Detection rate per 1,000 screens

Detection rates of DCIS plus invasive cancers are detailed in Table 3a.1b.

Table 3a.3b: Māori/non-Māori summary ratios, women aged 50–69 years, 2 years (July 2012 to June 2014)

Lead Provider	Initial screens				Subsequent screens			
	Referral to assessment as % of women screened	Estimated specificity	Positive Predictive Value	Detection rate per 1,000 screens	Referral to assessment as % of women screened	Estimated Specificity	Positive Predictive Value	Detection rate per 1,000 screens
BSWN	1.21	0.98	2.41	2.93	1.27	0.99	1.22	1.54
BSCM	1.18	0.99	0.98	1.17	1.07	1.00	1.77	1.88
BSAL	1.14	0.99	1.16	1.30	0.83	1.00	0.78	0.66
BSM	1.41	0.96	1.21	1.72	1.16	1.00	1.56	1.81
BSCtoC	1.47	0.98	1.07	1.55	1.22	1.00	1.26	1.55
BSC	1.40	0.98	1.12	1.57	1.31	0.99	1.30	1.71
BSSL	1.19	0.99	3.02	3.62	1.02	1.00	1.15	1.17
BSHC	1.46	0.98	1.51	2.18	0.96	1.00	1.05	1.01
BSA Total	1.36	0.98	1.34	1.82	1.12	1.00	1.37	1.53

For women having an **initial screen** the referral rate was 36% higher for Māori women than non-Māori women, the positive predictive value also 34% higher and the detection rate 82% higher, for BSA overall. Specificity was similar for both groups.

For women having a **subsequent screen**, the referral rate was only 12% higher for Māori women compared to non-Māori women, while the positive predictive value was 37% higher and the detection rate 53% higher. Specificity was the same for Māori and non-Māori.

Ratios

Referral to assessment

A ratio **above 1.0** indicates a higher proportion of Māori are being referred than non-Māori.

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.

Positive predictive value

A ratio **above 1.0** indicates that of all patients tested positive for breast cancer, the proportion of Māori who actually have the disease is greater than the proportion of non-Māori.

Detection rate per 1,000 screens

A ratio **above 1.0** demonstrates that a higher proportion of Māori women screened had cancers detected (both DCIS and invasive cancers). While it is beneficial that these are being detected through the screening programme, it is indicative of a higher background cancer incidence.

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

Description:

Proportion and rate of primary invasive breast cancer of diameter ≤ 15 mm.

Target for women aged 50–69 years:

Initial (prevalent) round: $>50\%$, which gives a rate of >30.5 per 10,000 screens.

Subsequent (incident) round: $>50\%$, which gives a rate of > 17.3 per 10,000 screens

Table 3c.1a: Proportion of invasive cancers less than or equal to 15mm, aged 45–49 years, 5 years (July 2009 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Invasive cancers ≤ 15 mm	Total invasive cancers	% of invasive cancers ≤ 15 mm	Invasive cancers ≤ 15 mm	Total invasive cancers	% of invasive cancers ≤ 15 mm	
Initial screen							
BSWN	14	18	77.8 (52.4, 93.6)	44	71	62.0 (49.7, 73.2)	1.26 (0.92, 1.71)
BSCM	3	12	25.0 (5.5, 57.2)	25	55	45.5 (32.0, 59.4)	0.55 (0.20, 1.53)
BSAL	2	6	33.3 (4.3, 77.7)	19	37	51.4 (34.4, 68.1)	0.65 (0.20, 2.10)
BSM	13	22	59.1 (36.4, 79.3)	26	48	54.2 (39.2, 68.6)	1.09 (0.71, 1.68)
BSCtoC	8	18	44.4 (21.5, 69.2)	21	40	52.5 (36.1, 68.5)	0.85 (0.47, 1.53)
BSC	1	6	16.7 (0.4, 64.1)	31	53	58.5 (44.1, 71.9)	0.28 (0.05, 1.73)
BSSL	8	12	66.7 (34.9, 90.1)	29	58	50.0 (36.6, 63.4)	1.33 (0.83, 2.15)
BSHC	0	0	- -	23	33	69.7 (51.3, 84.4)	- -
Total BSA	49	94	52.1 (41.6, 62.5)	218	395	55.2 (50.1, 60.2)	0.94 (0.76, 1.17)
Subsequent screen							
BSWN	8	13	61.5 (31.6, 86.1)	38	55	69.1 (55.2, 80.9)	0.89 (0.56, 1.42)
BSCM	4	9	44.4 (13.7, 78.8)	11	24	45.8 (25.6, 67.2)	0.97 (0.41, 2.27)
BSAL	3	5	60.0 (14.7, 94.7)	20	34	58.8 (40.7, 75.4)	1.02 (0.47, 2.20)
BSM	2	7	28.6 (3.7, 71.0)	25	41	61.0 (44.5, 75.8)	0.47 (0.14, 1.55)
BSCtoC	1	6	16.7 (0.4, 64.1)	10	25	40.0 (21.1, 61.3)	0.42 (0.07, 2.66)
BSC	5	5	100.0 (47.8, 100.0)	21	37	56.8 (39.5, 72.9)	1.76 (0.92, 2.23)#
BSSL	10	13	76.9 (46.2, 95.0)	50	83	60.2 (48.9, 70.8)	1.28 (0.90, 1.80)
BSHC	2	3	66.7 (9.4, 99.2)	9	20	45.0 (23.1, 68.5)	1.48 (0.58, 3.78)
Total BSA	35	61	57.4 (44.1, 70.0)	184	319	57.7 (52.1, 63.2)	0.99 (0.79, 1.26)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. No targets have been set for this age group.

During the five-year period July 2009 to June 2014, just over half of all invasive breast cancers detected among Māori and non-Māori women aged 45–49 years were less than or equal to 15 mm.

There were no differences in these proportions between Māori and non-Māori women.

Table 3c.1b: Proportion of invasive cancers less than or equal to 15mm, aged 50–69 years, 5 years (July 2009 to June 2014)

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 screen							
BSWN	13	19	68.4 (43.4, 87.4)	52	75	69.3 (57.6, 79.5)	0.99 (0.70, 1.39)
BSCM	10	16	62.5 (35.4, 84.8)	33	71	46.5 (34.5, 58.7)	1.34 (0.85, 2.12)
BSAL	1	5	20.0 (0.5, 71.6)	42	66	63.6 (50.9, 75.1)	0.31 (0.05, 1.83)
BSM	22	38	57.9 (40.8, 73.7)	32	62	51.6 (38.6, 64.5)	1.12 (0.78, 1.61)
BSCtoC	9	24	37.5 (18.8, 59.4)	23	44	52.3 (36.7, 67.5)	0.72 (0.40, 1.29)
BSC	7	11	63.6 (30.8, 89.1)	30	56	53.6 (39.7, 67.0)	1.19 (0.71, 1.98)
BSSL	1	1	100.0 (2.5, 100.0)	21	39	53.8 (37.2, 69.9)	1.86 (0.29, 2.19) #
BSHC	1	2	50.0 (1.3, 98.7)	9	20	45.0 (23.1, 68.5)	1.11 (0.26, 4.82)
Total BSA	64	116	55.2 (45.7, 64.4)	242	433	55.9 (51.1, 60.6)	0.99 (0.82, 1.19)
Subsequent screen							
BSWN	52	77	67.5 (55.9, 77.8)	348	507	68.6 (64.4, 72.7)	0.98 (0.83, 1.16)
BSCM	49	78	62.8 (51.1, 73.5)	135	260	51.9 (45.7, 58.1)	1.21 (0.98, 1.49)
BSAL	6	16	37.5 (15.2, 64.6)	125	211	59.2 (52.3, 65.9)	0.63 (0.33, 1.20)
BSM	77	124	62.1 (52.9, 70.7)	302	453	66.7 (62.1, 71.0)	0.93 (0.80, 1.08)
BSCtoC	41	70	58.6 (46.2, 70.2)	229	382	59.9 (54.8, 64.9)	0.98 (0.79, 1.21)
BSC	25	36	69.4 (51.9, 83.7)	191	313	61.0 (55.4, 66.5)	1.14 (0.90, 1.44)
BSSL	33	42	78.6 (63.2, 89.7)	520	716	72.6 (69.2, 75.9)	1.08 (0.92, 1.27)
BSHC	6	11	54.5 (23.4, 83.3)	171	256	66.8 (60.7, 72.5)	0.82 (0.47, 1.41)
Total BSA	289	454	63.7 (59.0, 68.1)	2,021	3,098	65.2 (63.5, 66.9)	0.98 (0.91, 1.05)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Target values are >50% for initial and for subsequent screens.

During the five-year period July 2009 to June 2014, 55% of the invasive cancers detected among Māori women having an initial screen and 64% of invasive cancers detected from subsequent screens were 15 mm or less, meeting the target value of >50%. These proportions were similar for non-Māori women.

Table 3c.2b: Detection rate of invasive breast cancer less than or equal to 15mm per 10,000 screens, aged 45–49 years, 5 years (July 2009 to June 2014)

Lead provider	Māori		Non-Māori		Māori/non-Māori ratio (95% CI)
	Number with breast cancer ≤15mm	Rate of breast cancer ≤15mm per 10,000 screens (95% CI)	Number with breast cancer ≤15mm	Rate of breast cancer ≤15mm per 10,000 screens (95% CI)	
Initial screen					
BSWN	14	48.0 (26.3, 80.5)	44	20.9 (15.2, 28.1)	2.30 (1.26, 4.19)
BSCM	3	12.5 (2.6, 36.5)	25	16.7 (10.8, 24.7)	0.75 (0.23, 2.47)
BSAL	2	20.7 (2.5, 74.7)	19	13.7 (8.3, 21.4)	1.51 (0.35, 6.47)
BSM	13	32.5 (17.3, 55.6)	26	15.8 (10.3, 23.2)	2.06 (1.06, 4.00)
BSCtoC	8	27.1 (11.7, 53.4)	21	16.5 (10.2, 25.2)	1.64 (0.73, 3.71)
BSC	1	6.5 (0.2, 36.3)	31	23.2 (15.8, 33.0)	0.28 (0.04, 2.06)
BSSL	8	46.2 (20.0, 90.9)	29	12.5 (8.3, 17.9)	3.71 (1.70, 8.11)
BSHC	0	0.0 (0.0, 57.0)	23	26.7 (16.9, 40.1)	0.00 (0.00, 2.32)
Total BSA	49	28.6 (21.2, 37.8)	218	17.5 (15.3, 20.0)	1.63 (1.20, 2.22)
Subsequent screen					
BSWN	8	27.9 (12.1, 54.9)	38	16.6 (11.7, 22.8)	1.68 (0.79, 3.60)
BSCM	4	22.5 (6.1, 57.6)	11	8.0 (4.0, 14.2)	2.83 (0.90, 8.88)
BSAL	3	30.6 (6.3, 89.3)	20	14.3 (8.8, 22.2)	2.14 (0.64, 7.17)
BSM	2	7.5 (0.9, 27.2)	25	16.9 (10.9, 24.9)	0.45 (0.11, 1.88)
BSCtoC	1	3.5 (0.1, 19.4)	10	6.2 (3.0, 11.4)	0.56 (0.07, 4.37)
BSC	5	34.4 (11.2, 80.1)	21	15.5 (9.6, 23.7)	2.22 (0.84, 5.89)
BSSL	10	46.1 (22.1, 84.6)	50	14.2 (10.5, 18.7)	3.25 (1.65, 6.41)
BSHC	2	33.4 (4.0, 120.1)	9	9.3 (4.2, 17.6)	3.61 (0.78, 16.65)
Total BSA	35	22.8 (15.9, 31.7)	184	13.1 (11.3, 15.2)	1.73 (1.21, 2.49)

Ratios above 1 mean Māori have higher rates of screen detected cancer ≤15mm than non-Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Among women aged 45–49 years, the rate of invasive cancers 15 mm or less in diameter per 10,000 screens was 63% higher for Māori women than non-Māori women having an initial screen and 73% higher for Māori women having a subsequent screen.

Table 3c.2b: Detection rate of invasive breast cancer less than or equal to 15mm per 10,000 screens, aged 50–69 years, 5 years (July 2009 to June 2014)

Lead provider	Māori		Non-Māori		Māori/non-Māori ratio (95% CI)
	Number with breast cancer ≤15mm	Rate of breast cancer ≤15mm per 10,000 screens (95% CI)	Number with breast cancer ≤15mm	Rate of breast cancer ≤15mm per 10,000 screens (95% CI)	
Initial screen					
BSWN	13	99.1 (52.9, 168.8)	52	45.1 (33.7, 59.1)	2.20 (1.20, 4.02)
BSCM	10	81.8 (39.3, 149.9)	33	35.3 (24.3, 49.5)	2.32 (1.15, 4.69)
BSAL	1	18.9 (0.5, 105.1)	42	47.3 (34.1, 63.8)	0.40 (0.06, 2.91)
BSM	22	74.3 (46.7, 112.4)	32	34.3 (23.4, 48.3)	2.17 (1.26, 3.73)
BSCtoC	9	46.9 (21.5, 88.8)	23	34.7 (22.0, 52.0)	1.35 (0.63, 2.92)
BSC	7	97.0 (39.1, 198.7)	30	46.0 (31.1, 65.6)	2.11 (0.93, 4.78)
BSSL	1	26.2 (0.7, 145.0)	21	39.1 (24.3, 59.8)	0.67 (0.09, 4.96)
BSHC	1	48.1 (1.2, 264.9)	9	29.0 (13.3, 55.1)	1.66 (0.21, 13.00)
Total BSA	64	69.2 (53.3, 88.2)	242	39.8 (35.0, 45.2)	1.74 (1.32, 2.28)
Subsequent screen					
BSWN	52	39.9 (29.8, 52.3)	348	29.0 (26.1, 32.2)	1.38 (1.03, 1.84)
BSCM	49	59.0 (43.7, 78.0)	135	19.8 (16.6, 23.4)	2.98 (2.15, 4.13)
BSAL	6	14.8 (5.4, 32.3)	125	19.3 (16.1, 23.0)	0.77 (0.34, 1.74)
BSM	77	48.8 (38.6, 61.0)	302	28.3 (25.2, 31.7)	1.73 (1.34, 2.21)
BSCtoC	41	29.5 (21.2, 40.0)	229	22.5 (19.7, 25.6)	1.31 (0.94, 1.83)
BSC	25	38.3 (24.8, 56.4)	191	23.7 (20.5, 27.3)	1.61 (1.07, 2.45)
BSSL	33	40.6 (28.0, 57.0)	520	29.5 (27.0, 32.1)	1.38 (0.97, 1.96)
BSHC	6	24.2 (8.9, 52.7)	171	26.9 (23.0, 31.2)	0.90 (0.40, 2.03)
Total BSA	289	40.1 (35.6, 44.9)	2,021	25.9 (24.7, 27.0)	1.55 (1.37, 1.75)

Ratios above 1 mean Māori have higher rates of screen detected cancer ≤15mm than non-Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. Target values are ≥ 30.5 per 10,000 screens for initial screens and ≥17.3 per 10,000 screens for subsequent screens.

Among Māori women aged 50–69 years, Māori women having an initial screen were 74% more likely than non-Māori to have a small cancer (≤15mm) detected. Among those having a subsequent screen, the rate for Māori women was 55% higher than the non-Māori rate.

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 for women aged 50–69 years:

Initial (prevalent) round: >70%

Subsequent (incident) round: >75%

Table 3d.1: Invasive cancers without nodal involvement, women aged 45–49 years, 5 years (July 2009 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Node negative invasive cancers	Total invasive cancers	% of invasive cancers with no nodal involvement	Node negative invasive cancers	Total invasive cancers	% of invasive cancers with no nodal involvement	
Initial screen							
BSWN	17	18	94.4(72.7, 99.9)	53	73	72.6(60.9, 82.4)	1.30(1.09, 1.56)
BSCM	7	13	53.8(25.1, 80.8)	33	57	57.9(44.1, 70.9)	0.93(0.54, 1.61)
BSAL	4	6	66.7(22.3, 95.7)	26	38	68.4(51.3, 82.5)	0.97(0.53, 1.79)
BSM	15	22	68.2(45.1, 86.1)	38	51	74.5(60.4, 85.7)	0.92(0.66, 1.27)
BSCtoC	11	18	61.1(35.7, 82.7)	29	40	72.5(56.1, 85.4)	0.84(0.56, 1.28)
BSC	3	6	50.0(11.8, 88.2)	38	55	69.1(55.2, 80.9)	0.72(0.32, 1.64)
BSSL	8	12	66.7(34.9, 90.1)	43	60	71.7(58.6, 82.5)	0.93(0.60, 1.43)
BSHC	0	0	--	24	33	72.7(54.5, 86.7)	--
Total BSA	65	95	68.4(58.1, 77.6)	284	407	69.8(65.1, 74.2)	0.98(0.84, 1.14)
Subsequent screen							
BSWN	8	13	61.5(31.6, 86.1)	37	56	66.1(52.2, 78.2)	0.93(0.58, 1.49)
BSCM	6	9	66.7(29.9, 92.5)	18	24	75.0(53.3, 90.2)	0.89(0.53, 1.49)
BSAL	4	5	80.0(28.4, 99.5)	26	34	76.5(58.8, 89.3)	1.05(0.65, 1.68)
BSM	3	7	42.9(9.9, 81.6)	27	41	65.9(49.4, 79.9)	0.65(0.27, 1.57)
BSCtoC	4	6	66.7(22.3, 95.7)	16	25	64.0(42.5, 82.0)	1.04(0.55, 1.97)
BSC	5	6	83.3(35.9, 99.6)	21	37	56.8(39.5, 72.9)	1.47(0.93, 2.31)
BSSL	10	13	76.9(46.2, 95.0)	65	85	76.5(66.0, 85.0)	1.01(0.73, 1.39)
BSHC	2	3	66.7(9.4, 99.2)	13	21	61.9(38.4, 81.9)	1.08(0.45, 2.56)
Total BSA	42	62	67.7(54.7, 79.1)	223	323	69.0(63.7, 74.0)	0.98(0.81, 1.18)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori. No targets have been set for this age group.

Two-thirds of Māori and non-Māori women aged 45–49 years diagnosed with screen-detected invasive breast cancer had no nodal involvements, for both initial and subsequent screens.

Table 3d.2: Invasive cancers without nodal involvement, women aged 50–69 years, 5 years (July 2009 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Node negative invasive cancers	Total invasive cancers	% of invasive cancers with no nodal involvement	Node negative invasive cancers	Total invasive cancers	% of invasive cancers with no nodal involvement	
Initial screen							
BSWN	16	19	84.2(60.4, 96.6)	60	75	80.0(69.2, 88.4)	1.05(0.84, 1.32)
BSCM	13	16	81.2(54.4, 96.0)	52	74	70.3(58.5, 80.3)	1.16(0.88, 1.53)
BSAL	3	5	60.0(14.7, 94.7)	52	66	78.8(67.0, 87.9)	0.76(0.37, 1.57)
BSM	28	38	73.7(56.9, 86.6)	46	63	73.0(60.3, 83.4)	1.01(0.79, 1.29)
BSCtoC	17	24	70.8(48.9, 87.4)	26	44	59.1(43.2, 73.7)	1.20(0.84, 1.71)
BSC	10	12	83.3(51.6, 97.9)	34	57	59.6(45.8, 72.4)	1.40(1.00, 1.95)
BSSL	1	1	100.0(2.5, 100.0)	24	39	61.5(44.6, 76.6)	1.62(0.26, 1.86) #
BSHC	2	2	100.0(15.8, 100.0)	12	20	60.0(36.1, 80.9)	1.67(0.48, 2.21) #
Total BSA	90	117	76.9(68.2, 84.2)	306	438	69.9(65.3, 74.1)	1.10(0.98, 1.24)
Subsequent screen							
BSWN	59	77	76.6(65.6, 85.5)	400	507	78.9(75.1, 82.4)	0.97(0.85, 1.11)
BSCM	59	78	75.6(64.6, 84.7)	192	261	73.6(67.8, 78.8)	1.03(0.89, 1.19)
BSAL	12	16	75.0(47.6, 92.7)	166	216	76.9(70.6, 82.3)	0.98(0.73, 1.31)
BSM	90	124	72.6(63.8, 80.2)	357	459	77.8(73.7, 81.5)	0.93(0.83, 1.05)
BSCtoC	59	70	84.3(73.6, 91.9)	298	385	77.4(72.9, 81.5)	1.09(0.97, 1.22)
BSC	28	37	75.7(58.8, 88.2)	237	315	75.2(70.1, 79.9)	1.01(0.83, 1.22)
BSSL	34	42	81.0(65.9, 91.4)	585	721	81.1(78.1, 83.9)	1.00(0.86, 1.16)
BSHC	9	11	81.8(48.2, 97.7)	205	259	79.2(73.7, 83.9)	1.03(0.78, 1.38)
Total BSA	350	455	76.9(72.8, 80.7)	2,440	3,123	78.1(76.6, 79.6)	0.98(0.93, 1.04)

Ratios below one are unfavourable to Māori. Target values are >70% for initial screens and >75% for subsequent screens.

The target values for the proportions of invasive cancers that had no nodal involvement were met for Māori and non-Māori women having initial or subsequent screens during the five year period. There were no differences between the proportions for Māori and non-Māori women.

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 for women aged 50–69 years:

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

Table 3e: Women with DCIS as a percentage of all screen detected cancers, 5 years (July 2009 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Number of DCIS	Total number of cancers	% of total cancer (95% CI)	Number of DCIS	Total number of cancers	% of total cancers (95% CI)	
45–49 years							
BSWN	4	36	11.1 (3.1, 26.1)	56	190	29.5 (23.1, 36.5)	<i>0.38 (0.15, 0.97)</i>
BSCM	7	29	24.1 (10.3, 43.5)	22	104	21.2 (13.8, 30.3)	1.14 (0.54, 2.40)
BSAL	3	15	20.0 (4.3, 48.1)	33	110	30.0 (21.6, 39.5)	0.67 (0.23, 1.91)
BSM	7	36	19.4 (8.2, 36.0)	31	123	25.2 (17.8, 33.8)	0.77 (0.37, 1.60)
BSCtoC	4	28	14.3 (4.0, 32.7)	29	94	30.9 (21.7, 41.2)	0.46 (0.18, 1.21)
BSC	1	13	7.7 (0.2, 36.0)	37	129	28.7 (21.1, 37.3)	0.27 (0.04, 1.80)
BSSL	5	30	16.7 (5.6, 34.7)	65	212	30.7 (24.5, 37.3)	0.54 (0.24, 1.24)
BSHC	4	7	57.1 (18.4, 90.1)	22	78	28.2 (18.6, 39.5)	2.03 (0.97, 4.22)
Total BSA	35	194	18.0 (12.9, 24.2)	295	1,040	28.4 (25.6, 31.2)	<i>0.64 (0.46, 0.87)</i>
50–69 years							
BSWN	24	126	19.0 (12.6, 27.0)	185	775	23.9 (20.9, 27.0)	0.80 (0.54, 1.17)
BSCM	10	104	9.6 (4.7, 17.0)	108	447	24.2 (20.3, 28.4)	0.40 (0.22, 0.73)
BSAL	5	30	16.7 (5.6, 34.7)	106	419	25.3 (21.2, 29.7)	0.66 (0.29, 1.49)
BSM	24	190	12.6 (8.3, 18.2)	141	666	21.2 (18.1, 24.5)	0.60 (0.40, 0.89)
BSCtoC	13	107	12.1 (6.6, 19.9)	78	508	15.4 (12.3, 18.8)	0.79 (0.46, 1.37)
BSC	13	62	21.0 (11.7, 33.2)	108	482	22.4 (18.8, 26.4)	0.94 (0.56, 1.56)
BSSL	10	54	18.5 (9.3, 31.4)	199	963	20.7 (18.1, 23.4)	0.90 (0.51, 1.59)
BSHC	3	17	17.6 (3.8, 43.4)	66	350	18.9 (14.9, 23.4)	0.94 (0.33, 2.67)
Total BSA	102	690	14.8 (12.2, 17.7)	991	4,610	21.5 (20.3, 22.7)	<i>0.69 (0.57, 0.83)</i>

Ratios in italics show a statistically significant difference between Māori and non-Māori.

The proportions of screen-detected cancers that were DCIS were within the target range of 10–25% for Māori and non-Māori women aged 50–69 years during this five year period. The proportion was 30% lower for Māori than for non-Māori women.

Among women aged 45–49 years, 18% of breast cancers detected among Māori women were DCIS compared to 28% among non-Māori women.

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 for women aged 50–69 years:

≥90% notified within 10 working days (expected).

≥95% notified within 10 working days (desirable).

Table 5a: Percentage of women notified of screening results within 10 working days, 2 years (July 2012 to June 2014)

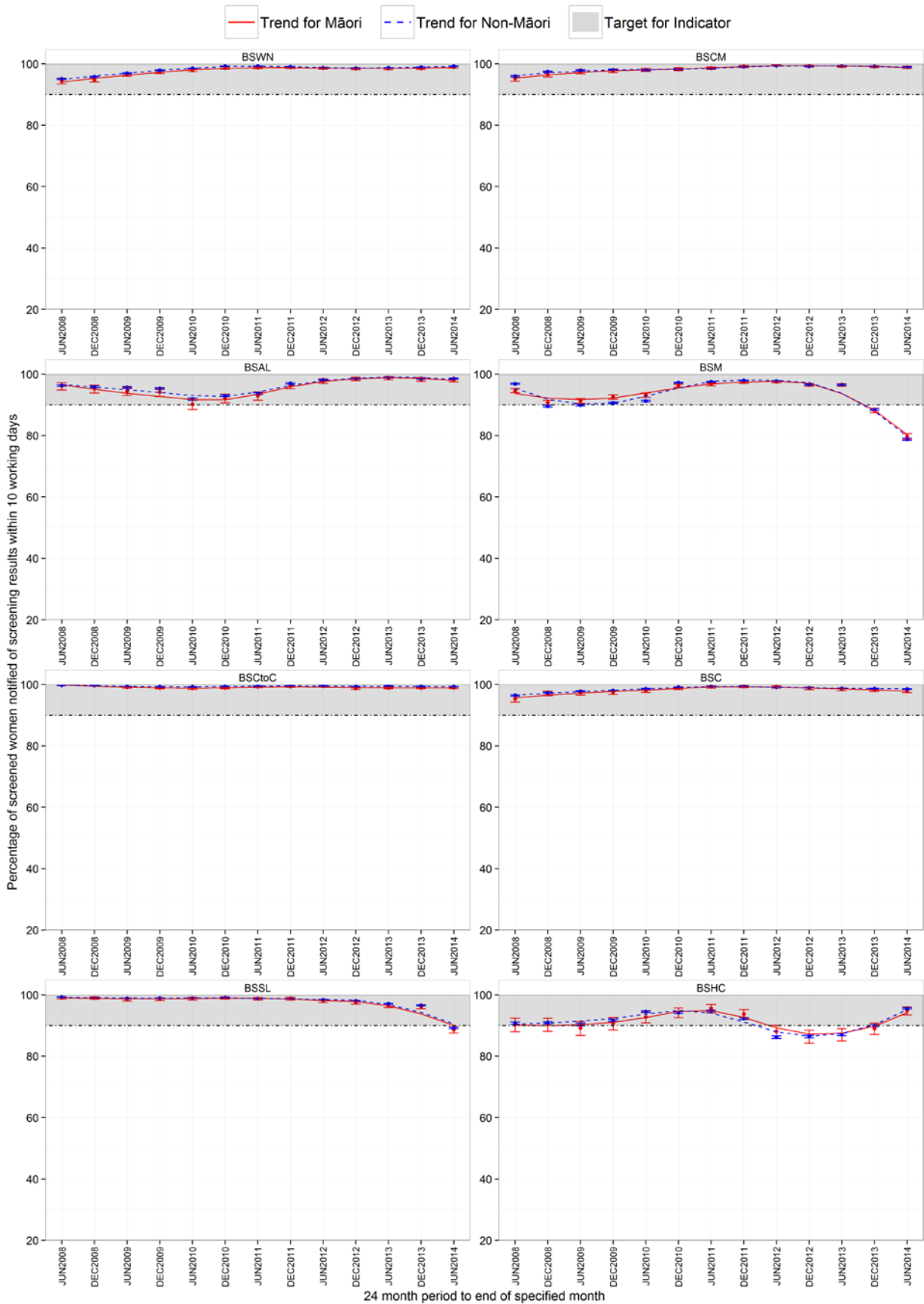
Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	No. of women notified within 10 working days	No. of women screened	% notified within 10 working days (95% CI)	No. of women notified within 10 working days	No. of women screened	% notified within 10 working days (95% CI)	
45–49 years							
BSWN	2,113	2,155	98.1 (97.4, 98.6)	16,946	17,226	98.4 (98.2, 98.6)	1.00(0.99, 1.00)
BSCM	1,691	1,708	99.0 (98.4, 99.4)	11,655	11,819	98.6 (98.4, 98.8)	1.00(1.00, 1.01)
BSAL	736	758	97.1 (95.6, 98.2)	10,842	11,164	97.1 (96.8, 97.4)	1.00(0.99, 1.01)
BSM	2,228	2,804	79.5 (77.9, 80.9)	9,822	12,543	78.3 (77.6, 79.0)	1.01(0.99, 1.04)
BSCtoC	2,207	2,228	99.1 (98.6, 99.4)	10,781	10,868	99.2 (99.0, 99.4)	1.00(0.99, 1.00)
BSC	1,126	1,151	97.8 (96.8, 98.6)	10,515	10,763	97.7 (97.4, 98.0)	1.00(0.99, 1.01)
BSSL	1,377	1,559	88.3 (86.6, 89.9)	19,741	22,409	88.1 (87.7, 88.5)	1.00(0.98, 1.02)
BSHC	489	535	91.4 (88.7, 93.6)	7,174	7,717	93.0 (92.4, 93.5)	0.98(0.96, 1.01)
Total BSA	11,967	12,898	92.8 (92.3, 93.2)	97,476	104,509	93.3 (93.1, 93.4)	0.99(0.99, 1.00)
50–69 years							
BSWN	5,898	5,964	98.9 (98.6, 99.1)	52,913	53,337	99.2 (99.1, 99.3)	1.00(0.99, 1.00)
BSCM	3,954	4,000	98.9 (98.5, 99.2)	32,360	32,717	98.9 (98.8, 99.0)	1.00(1.00, 1.00)
BSAL	1,898	1,933	98.2 (97.5, 98.7)	29,899	30,343	98.5 (98.4, 98.7)	1.00(0.99, 1.00)
BSM	6,456	8,102	79.7 (78.8, 80.6)	37,875	48,073	78.8 (78.4, 79.2)	1.01(1.00, 1.02)
BSCtoC	6,609	6,681	98.9 (98.6, 99.2)	43,650	43,964	99.3 (99.2, 99.4)	1.00(0.99, 1.00)
BSC	3,014	3,079	97.9 (97.3, 98.4)	35,194	35,733	98.5 (98.4, 98.6)	0.99(0.99, 1.00)
BSSL	3,096	3,494	88.6 (87.5, 89.6)	63,894	71,625	89.2 (89.0, 89.4)	0.99(0.98, 1.01)
BSHC	1,118	1,179	94.8 (93.4, 96.0)	26,344	27,564	95.6 (95.3, 95.8)	0.99(0.98, 1.01)
Total BSA	32,043	34,432	93.1 (92.8, 93.3)	322,129	343,356	93.8 (93.7, 93.9)	0.99(0.99, 0.99)

Ratios below one are unfavourable to Māori.

Over 90% of Māori and non-Māori women received their screening results within 10 working days, in both age groups.

BSM did not meet the target for Māori or non-Māori women and appears to show a decreasing trend. BSSL was very close to the target value.

Figure 5a: Trends in the percentage of Māori women aged 50–69 years notified of screening results within 10 working days



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 for women aged 50–69 years:

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 2012 to June 2014)

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)	
45–49 years							
BSWN	140	169	82.8 (76.3, 88.2)	1,073	1,216	88.2 (86.3, 90.0)	0.94 (0.87, 1.01)
BSCM	87	107	81.3 (72.6, 88.2)	500	603	82.9 (79.7, 85.8)	0.98 (0.89, 1.08)
BSAL	24	31	77.4 (58.9, 90.4)	391	561	69.7 (65.7, 73.5)	1.11 (0.91, 1.35)
BSM	181	238	76.1 (70.1, 81.3)	672	942	71.3 (68.3, 74.2)	1.07 (0.98, 1.16)
BSCtoC	92	124	74.2 (65.6, 81.6)	358	415	86.3 (82.6, 89.4)	0.86 (0.77, 0.96)
BSC	40	46	87.0 (73.7, 95.1)	509	564	90.2 (87.5, 92.6)	0.96 (0.86, 1.08)
BSSL	85	135	63.0 (54.2, 71.1)	966	1,529	63.2 (60.7, 65.6)	1.00 (0.87, 1.14)
BSHC	9	28	32.1 (15.9, 52.4)	149	417	35.7 (31.1, 40.5)	0.90 (0.52, 1.56)
Total BSA	658	878	74.9 (71.9, 77.8)	4,618	6,247	73.9 (72.8, 75.0)	1.01 (0.97, 1.06)
50–69 years							
BSWN	237	284	83.5 (78.6, 87.6)	1,753	2,045	85.7 (84.1, 87.2)	0.97 (0.92, 1.03)
BSCM	102	142	71.8 (63.7, 79.1)	862	1,081	79.7 (77.2, 82.1)	0.90 (0.81, 1.00)
BSAL	34	50	68.0 (53.3, 80.5)	648	903	71.8 (68.7, 74.7)	0.95 (0.78, 1.15)
BSM	302	430	70.2 (65.7, 74.5)	1,317	1,880	70.1 (67.9, 72.1)	1.00 (0.94, 1.07)
BSCtoC	136	179	76.0 (69.0, 82.0)	729	860	84.8 (82.2, 87.1)	0.90 (0.82, 0.98)
BSC	118	137	86.1 (79.2, 91.4)	1,084	1,188	91.2 (89.5, 92.8)	0.94 (0.88, 1.01)
BSSL	86	140	61.4 (52.8, 69.5)	1,700	2,731	62.2 (60.4, 64.1)	0.99 (0.86, 1.13)
BSHC	16	38	42.1 (26.3, 59.2)	343	820	41.8 (38.4, 45.3)	1.01 (0.69, 1.47)
Total BSA	1,031	1,400	73.6 (71.3, 75.9)	8,436	11,508	73.3 (72.5, 74.1)	1.00 (0.97, 1.04)

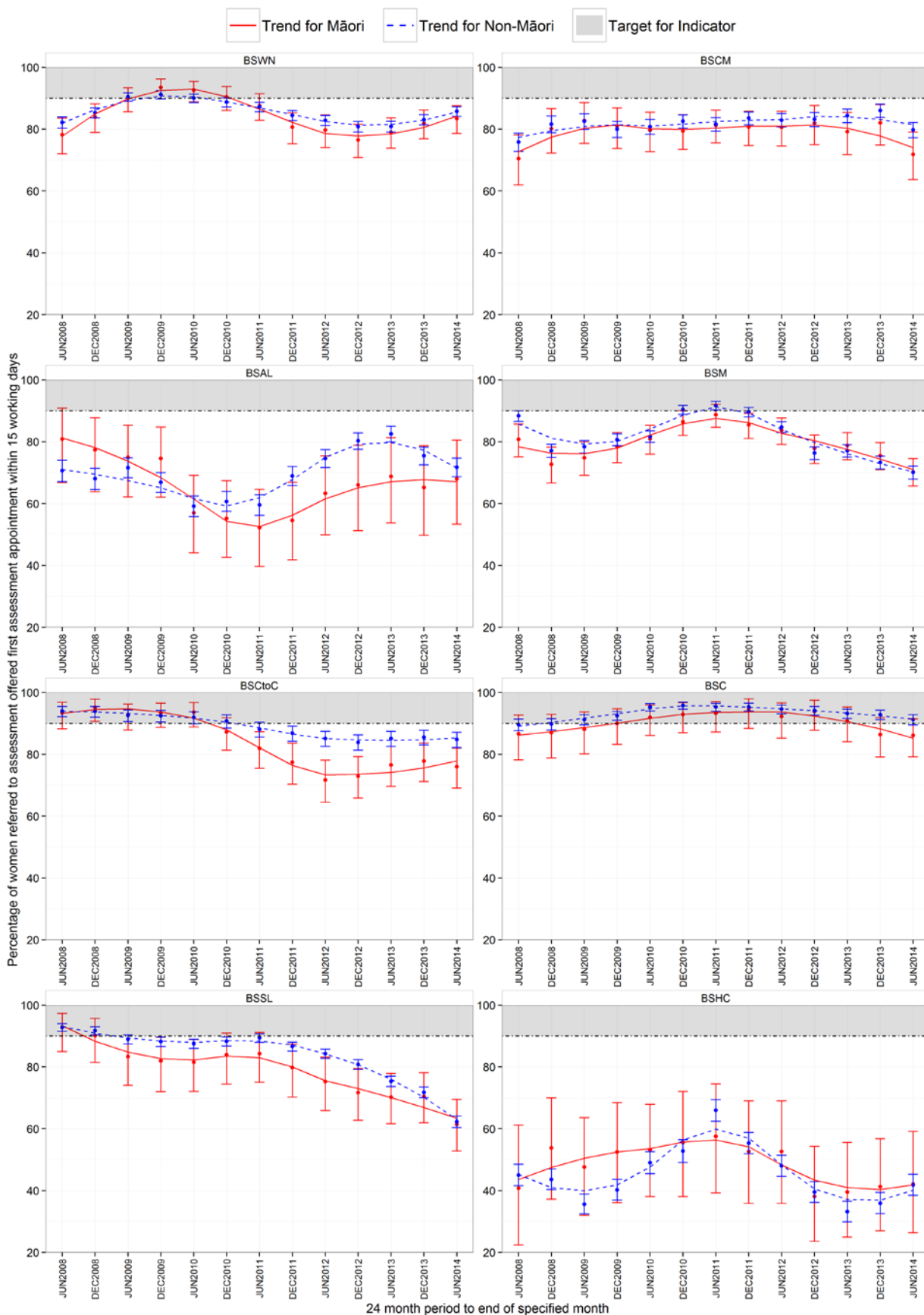
Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target of 90% or more.

Only around 74% of women were offered their first assessment appointment within 15 working days. Apart from BSC, most LPs did not achieve the target value of 90%. The lowest proportions of Māori and non-Māori women offered timely assessment appointments were in BSHC (42% of both Māori and non-Māori women aged 50–69 years).

Among women aged 45–49 years, the proportions were similar.

There appears to be a decreasing trend in this indicator in BSSL since the Christchurch earthquakes. BSM also shows a decreasing trend over the last three years.

Figure 5b: Trends in percentage of Māori women aged 50–69 years offered first assessment appointment within 15 working days



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 for women aged 50–69 years:

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 **20 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 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	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)	
45–49 years							
BSWN	64	65	98.5 (91.7, 100.0)	345	347	99.4 (97.9, 99.9)	0.99 (0.96, 1.02)
BSCM	56	59	94.9 (85.9, 98.9)	240	250	96.0 (92.8, 98.1)	0.99 (0.93, 1.05)
BSAL	18	19	94.7 (74.0, 99.9)	168	191	88.0 (82.5, 92.2)	1.08 (0.96, 1.21)
BSM	84	87	96.6 (90.3, 99.3)	257	270	95.2 (91.9, 97.4)	1.01 (0.97, 1.06)
BSCtoC	60	60	100.0 (94.0, 100.0)	121	121	100.0 (97.0, 100.0)	1.00 (0.95, 1.02)#
BSC	17	17	100.0 (80.5, 100.0)	123	123	100.0 (97.0, 100.0)	1.00 (0.82, 1.01)#
BSSL	45	49	91.8 (80.4, 97.7)	438	475	92.2 (89.4, 94.5)	1.00 (0.91, 1.09)
BSHC	12	12	100.0 (73.5, 100.0)	134	145	92.4 (86.8, 96.2)	1.08 (0.82, 1.12)#
Total BSA	356	368	96.7 (94.4, 98.3)	1,826	1,922	95.0 (93.9, 95.9)	1.02 (1.00, 1.04)
50–69 years							
BSWN	118	119	99.2 (95.4, 100.0)	687	695	98.8 (97.7, 99.5)	1.00 (0.98, 1.02)
BSCM	81	86	94.2 (87.0, 98.1)	423	449	94.2 (91.6, 96.2)	1.00 (0.94, 1.06)
BSAL	19	21	90.5 (69.6, 98.8)	317	349	90.8 (87.3, 93.6)	1.00 (0.86, 1.15)
BSM	194	210	92.4 (87.9, 95.6)	644	684	94.2 (92.1, 95.8)	0.98 (0.94, 1.02)
BSCtoC	96	98	98.0 (92.8, 99.8)	379	379	100.0 (99.0, 100.0)	0.98 (0.93, 1.00)#
BSC	49	49	100.0 (92.7, 100.0)	336	338	99.4 (97.9, 99.9)	1.01 (0.94, 1.01)#
BSSL	51	53	96.2 (87.0, 99.5)	897	989	90.7 (88.7, 92.4)	1.06 (1.00, 1.12)
BSHC	15	15	100.0 (78.2, 100.0)	319	326	97.9 (95.6, 99.1)	1.02 (0.81, 1.03)#
Total BSA	623	651	95.7 (93.8, 97.1)	4,002	4,209	95.1 (94.4, 95.7)	1.01 (0.99, 1.02)

Ratios below one are unfavourable to Māori. Ratios in italics show a statistically significant difference between Māori and non-Māori.

Over 95% of Māori and non-Māori women in both age groups received their needle biopsy within 5 working days of assessment, with all LPs meeting the target value of at least 90%.

Figure 5c.1: Trends in the percentage of Māori women aged 50–69 years receiving needle biopsy within 5 working days of assessment

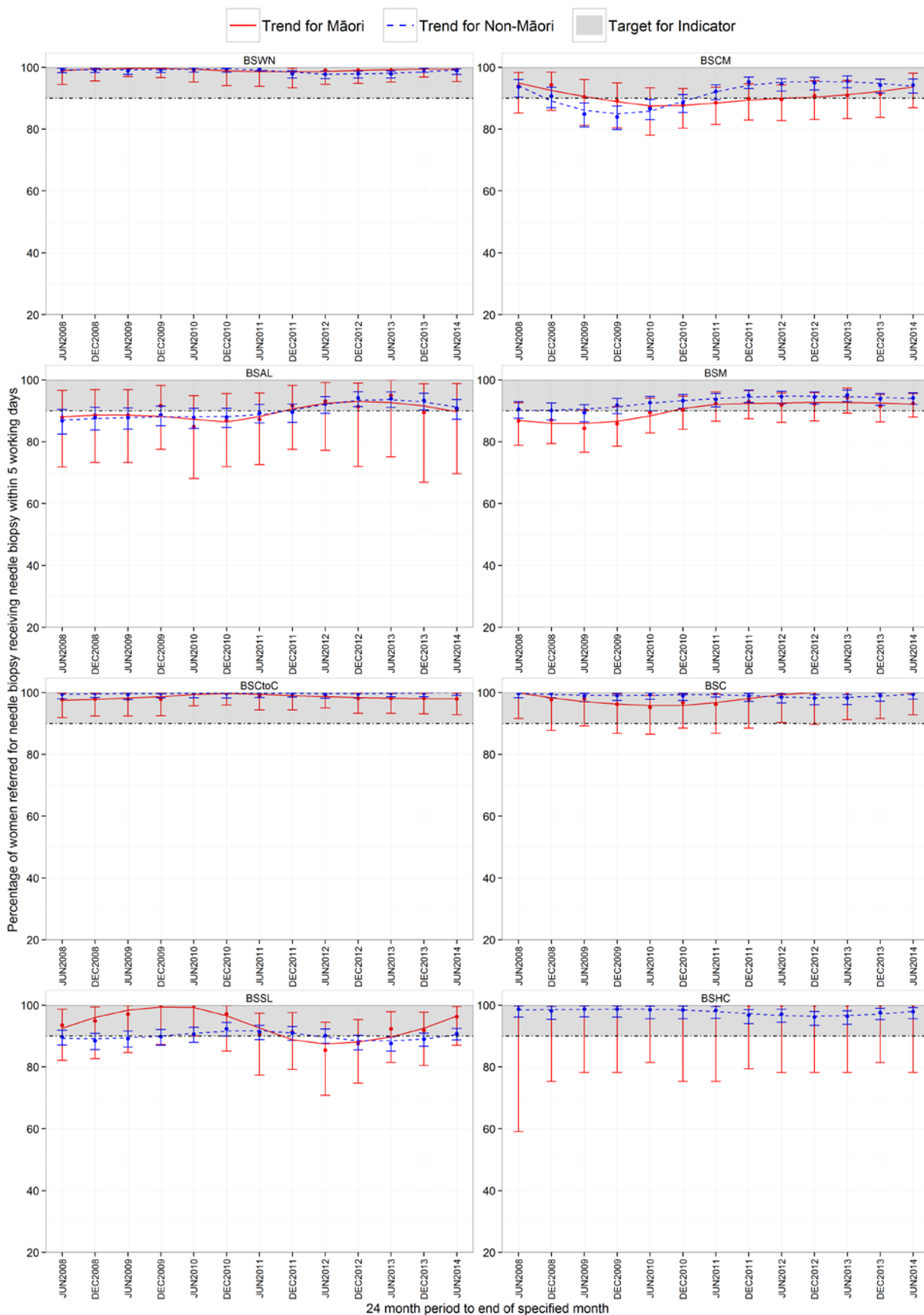
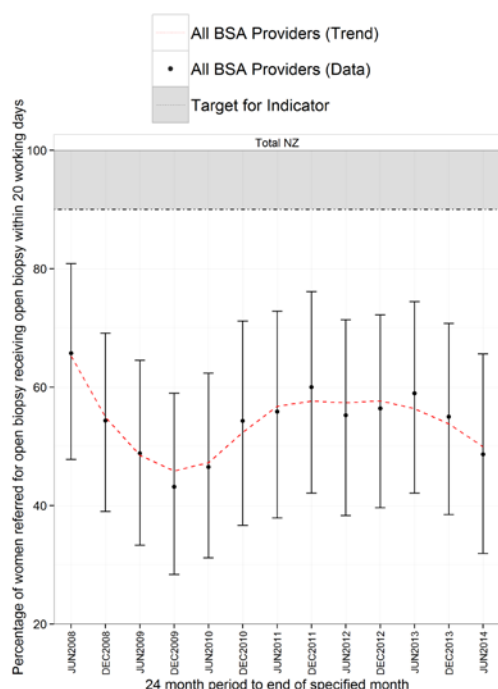


Table 5c.2: Women receiving open biopsy procedure within 20 working days of notification of the need for the operation, 2 years (July 2012 to June 2014)

Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Open biopsies within 20 working days of notification	Total open biopsies	% of open biopsies (95% CI)	Open biopsies within 20 working days of notification	Total open biopsies	% of open biopsies (95% CI)	
45–49 years							
BSWN	0	4	0.0 (0.0, 60.2)	24	42	57.1 (41.0, 72.3)	0.00 (0.00, 1.74)
BSCM	0	0	- -	1	5	20.0 (0.5, 71.6)	- -
BSAL	2	2	100.0(15.8, 100.0)	8	11	72.7 (39.0, 94.0)	1.38 (0.41, 1.96)#
BSM	5	9	55.6 (21.2, 86.3)	20	31	64.5 (45.4, 80.8)	0.86 (0.45, 1.63)
BSCtoC	0	1	0.0 (0.0, 97.5)	3	7	42.9 (9.9, 81.6)	0.00 (0.00, 16.94)
BSC	0	0	- -	2	5	40.0 (5.3, 85.3)	- -
BSSL	2	2	100.0(15.8, 100.0)	22	25	88.0 (68.8, 97.5)	1.14 (0.34, 1.27)#
BSHC	0	0	- -	1	3	33.3 (0.8, 90.6)	- -
Total BSA	9	18	50.0 (26.0, 74.0)	81	129	62.8 (53.8, 71.1)	0.80 (0.49, 1.29)
50–69 years							
BSWN	5	12	41.7 (15.2, 72.3)	41	78	52.6 (40.9, 64.0)	0.79 (0.39, 1.60)
BSCM	0	0	- -	2	6	33.3 (4.3, 77.7)	- -
BSAL	0	0	- -	12	14	85.7 (57.2, 98.2)	- -
BSM	7	16	43.8 (19.8, 70.1)	30	53	56.6 (42.3, 70.2)	0.77 (0.42, 1.41)
BSCtoC	1	3	33.3 (0.8, 90.6)	3	21	14.3 (3.0, 36.3)	2.33 (0.34, 15.80)
BSC	2	3	66.7 (9.4, 99.2)	8	20	40.0 (19.1, 63.9)	1.67 (0.64, 4.37)
BSSL	3	3	100.0(29.2, 100.0)	37	45	82.2 (67.9, 92.0)	1.22 (0.49, 1.33)#
BSHC	0	0	- -	5	10	50.0 (18.7, 81.3)	- -
Total BSA	18	37	48.6 (31.9, 65.6)	138	247	55.9 (49.4, 62.2)	0.87 (0.61, 1.23)

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target of 90%.

Figure 5c.2: Trends in the percentage of Māori women aged 50–69 years receiving open biopsy within 20 working days of notification of the need for the operation



Just under half of Māori women (49%) and just over half of non-Māori women (56%) aged 50–69 years received their open biopsy procedure within 20 working days of notification. These were well below the target of 90% and there has been no improvement in this indicator since the previous reports.

Among women aged 45–49 years the proportions were 50% for Māori and 63% for non-Māori women.

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 for women aged 50–69 years:

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

Table 5d: Percentage of women receiving final diagnostic biopsy results within 5 working days, 2 years (July 2012 to June 2014)

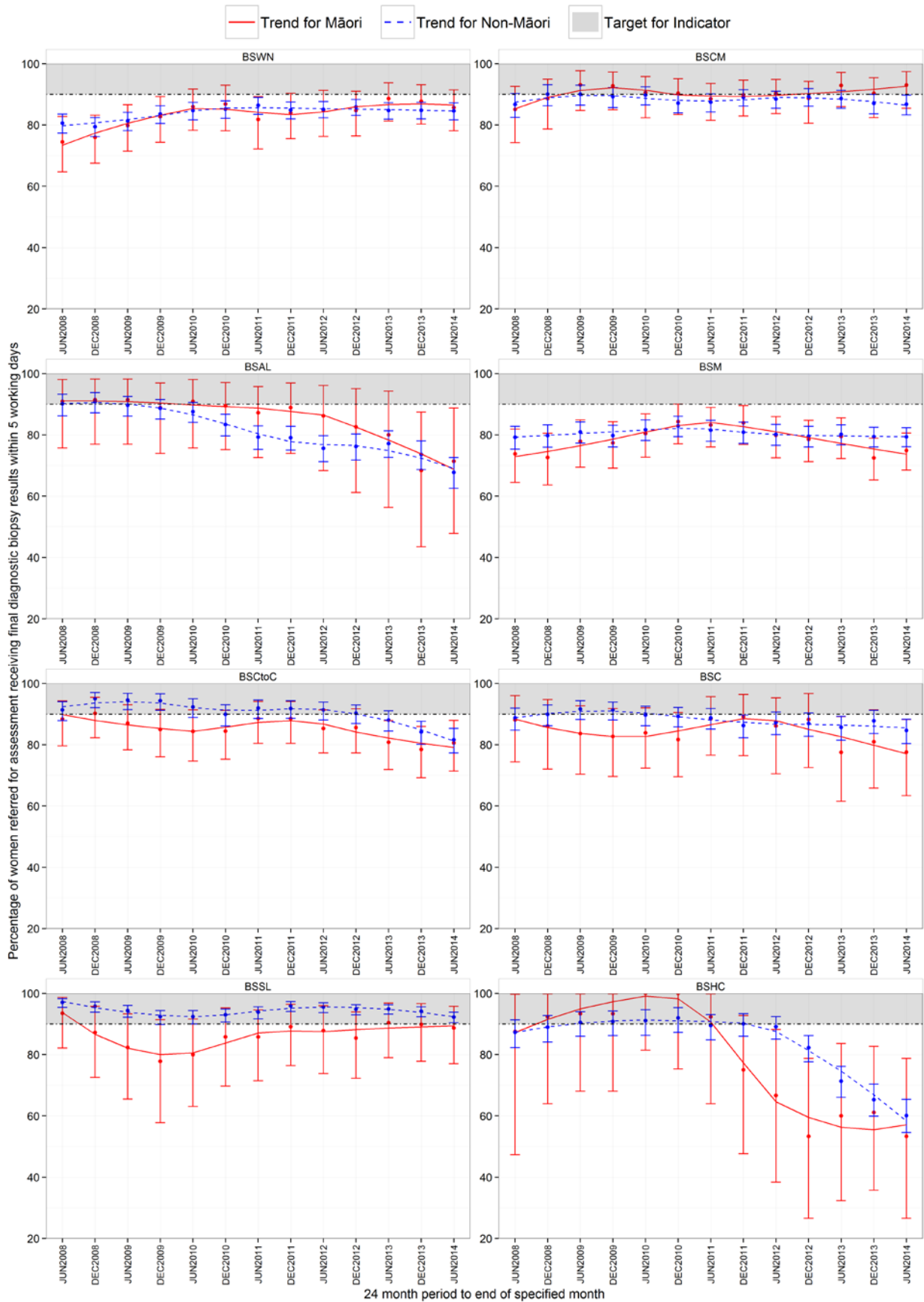
Lead provider	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)
	Results reported within 5 working days of final biopsy	Number with final diagnostic biopsy	% received final biopsy results within 5 working days (95% CI)	Results reported within 5 working days of final biopsy	Number with final diagnostic biopsy	% received final biopsy results within 5 working days (95% CI)	
45–49 years							
BSWN	60	65	92.3 (83.0, 97.5)	305	349	87.4 (83.4, 90.7)	1.06 (0.97, 1.15)
BSCM	54	59	91.5 (81.3, 97.2)	221	250	88.4 (83.8, 92.1)	1.04 (0.95, 1.13)
BSAL	16	19	84.2 (60.4, 96.6)	133	191	69.6 (62.6, 76.1)	1.21 (0.97, 1.50)
BSM	71	87	81.6 (71.9, 89.1)	205	270	75.9 (70.4, 80.9)	1.07 (0.95, 1.21)
BSCtoC	52	60	86.7 (75.4, 94.1)	96	121	79.3 (71.0, 86.2)	1.09 (0.95, 1.25)
BSC	15	17	88.2 (63.6, 98.5)	102	123	82.9 (75.1, 89.1)	1.06 (0.88, 1.29)
BSSL	42	49	85.7 (72.8, 94.1)	425	477	89.1 (86.0, 91.8)	0.96 (0.85, 1.08)
BSHC	12	12	100.0 (73.5, 100.0)	105	146	71.9 (63.9, 79.0)	1.39 (1.04, 1.50) #
Total BSA	322	368	87.5 (83.7, 90.7)	1,592	1,927	82.6 (80.8, 84.3)	1.06 (1.01, 1.11)
50–69 years							
BSWN	102	119	85.7 (78.1, 91.5)	593	701	84.6 (81.7, 87.2)	1.01 (0.94, 1.10)
BSCM	80	86	93.0 (85.4, 97.4)	388	447	86.8 (83.3, 89.8)	1.07 (1.00, 1.15)
BSAL	15	21	71.4 (47.8, 88.7)	237	350	67.7 (62.5, 72.6)	1.05 (0.80, 1.40)
BSM	158	211	74.9 (68.5, 80.6)	545	687	79.3 (76.1, 82.3)	0.94 (0.87, 1.03)
BSCtoC	79	98	80.6 (71.4, 87.9)	310	380	81.6 (77.3, 85.3)	0.99 (0.89, 1.10)
BSC	38	49	77.6 (63.4, 88.2)	287	339	84.7 (80.4, 88.3)	0.92 (0.78, 1.07)
BSSL	47	53	88.7 (77.0, 95.7)	915	992	92.2 (90.4, 93.8)	0.96 (0.87, 1.06)
BSHC	8	15	53.3 (26.6, 78.7)	197	328	60.1 (54.5, 65.4)	0.89 (0.55, 1.44)
Total BSA	527	652	80.8 (77.6, 83.8)	3,472	4,224	82.2 (81.0, 83.3)	0.98 (0.94, 1.02)

Ratios below one are unfavourable to Māori. Shaded boxes show confidence interval excludes target of at least 90%.

Among women aged 50–69 years, 81% of Māori and 82% of non-Māori women received their final diagnostic biopsy results within 5 working days, both below the target of >90%. For Māori women served by BSWN, BSCM and BSSL the target was met or was within the confidence interval.

Among women aged 45–49 years, 88% of Māori women and 83% of non-Māori women received their results within 5 working days.

Figure 5d: Trends in the percentage of Māori women aged 50–69 years receiving final diagnostic biopsy results within 5 working days



APPENDIX A: POPULATION DENOMINATORS

The eligible populations in these reports have been calculated from population estimates for usually resident populations in each Lead Provider district, provided by Statistics New Zealand. The projections are based on the 2013 New Zealand Census, assuming medium fertility, medium mortality, medium inter-ethnic mobility and medium migration.

The mid-year 2013 population estimate has been used. This is the same population that is used for all BSA quality and contract monitoring for the period July 2012 to June 2014.

The denominators for each ethnic group are also taken from the census and calculated from mid-year projected resident populations in each Lead Provider district, provided by Statistics New Zealand.

In the census it is possible to choose more than one ethnic group. Where more than one category has been chosen, priority is given to certain ethnic groups for the purposes of classification. Thus, if a woman chooses more than one category and one of these is Māori, she is counted as Māori.

Tables A1 and A2 below use the prioritised definition of ethnicity.

Table A1: Mid-year population estimates 2013 by ethnicity, Lead Provider, 45–49 and 50–69 years

Age group (yrs)	BSWN	BSCM	BSAL	BSM	BSCtoC	BSC	BSSL	BSHC	BSA Total
Māori									
45–49	3,395	2,415	1,175	5,250	3,955	1,925	1,915	865	20,895
50–69	8,995	5,655	3,060	14,110	10,380	4,675	4,455	1,870	53,200
Total	12,390	8,070	4,235	19,360	14,335	6,600	6,370	2,735	74,095
Non-Māori									
45–49	24,200	15,555	15,370	19,340	15,441	16,140	25,724	10,030	141,800
50–69	76,540	45,510	43,700	70,980	58,626	49,536	88,336	35,320	468,548
Total	100,740	61,065	59,070	90,320	74,067	65,676	114,060	45,350	610,348

Table A2: Mid-year population estimates 2013 by ethnicity, Lead Provider, and 5-year age group

Age group (yrs)	BSWN	BSCM	BSAL	BSM	BSCtoC	BSC	BSSL	BSHC	BSA Total
Māori									
45–49	3,395	2,415	1,175	5,250	3,955	1,925	1,915	865	20,895
50–54	3,370	2,080	1,165	5,055	3,700	1,805	1,695	725	19,595
55–59	2,460	1,605	870	4,030	2,875	1,290	1,195	510	14,835
60–64	1,875	1,195	620	3,000	2,225	950	925	380	11,170
65–69	1,290	775	405	2,025	1,580	630	640	255	7,600
Non-Māori									
45–49	24,200	15,555	15,370	19,340	15,441	16,140	25,724	10,030	141,800
50–54	22,990	14,510	13,995	20,065	16,741	15,410	26,093	10,615	140,419
55–59	20,000	12,075	12,045	18,300	15,168	13,003	23,083	9,260	122,934
60–64	18,045	10,510	10,060	17,165	14,358	11,483	21,349	8,370	111,340
65–69	15,505	8,415	7,600	15,450	12,359	9,640	17,811	7,075	93,855

APPENDIX B: GLOSSARY OF TERMS

Assessment

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

Assessment rate

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

Asymptomatic

Women who do not have symptoms of breast cancer.

Axillary lymph nodes

Lymph nodes located in the armpits.

BCS

Breast conserving surgery

Biopsy

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

Benign biopsy weight

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

Benign biopsy rate

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

BSA

BreastScreen Aotearoa.

Coverage

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

ER

Estrogen Receptor

False negative

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

False positive result

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

FNAC

Fine needle aspiration cytology

IMMG

Independent Māori Monitoring Group

IMMR

Independent Māori Monitoring Report

Initial screen

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

Lead Provider

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

MAG

Māori Advisory Group

MMEG

Māori Monitoring and Equity Group

Negative predictive value (NPV)

The proportion of women screened negative who are ultimately diagnosed as not having cancer.

Node negative

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

Node positive

Axillary lymph nodes (in armpit) contain cancer cells

Positive predictive value (PPV)

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

PR

Progesterone receptor

Pre-operative diagnosis rate

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

Rescreen

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

Sensitivity

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

Specificity

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

Subsequent screen

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

Technical recall rate

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

Technical reject rate

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