

BreastScreen Aotearoa
MONITORING REPORT No. 11

Women screened
between 1 October and 31 December 2001

BreastScreen Aotearoa Independent Monitoring Group
Report to the Ministry of Health

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Technical Report No. 41
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Under contract with the Ministry of Health the monitoring group is required to monitor and evaluate aspects of BreastScreen Aotearoa, the national breast-screening programme. The measures of performance assessed by the monitoring group are specified by the Ministry of Health. The list of agreed measures of performance to be included in quarterly and annual monitoring reports to the Ministry of Health is in Appendix A. The monitoring group can also recommend to the Ministry of Health additional monitoring and evaluation that it considers to be required.

The monitoring group received data for this report on February 28, 2001. The draft report was written in March and April 2002 and was sent to the Ministry of Health on April 29, 2002 for comment.

Technical terms are used throughout the report, and an understanding of these terms is likely to be necessary to interpret some parts of the report.

DISCLAIMER

1. BSAIMG results within monitoring reports are obtained from the national monitoring data set, which has been received from the National Screening Unit of the Ministry of Health. BSAIMG results are calculated by lead provider and cumulatively for BreastScreen Aotearoa. The monitoring group does not monitor the results for individual women within BreastScreen Aotearoa.

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Foreword

BSAIMG Monitoring Process

This brief foreword describes the process used by BSAIMG to produce these reports.

Data are sent monthly from the six BreastScreen Aotearoa lead providers to the New Zealand Health Information Service of the Ministry of Health (NZHIS). The data are checked at NZHIS, amalgamated into a single file, and sent to the National Screening Unit (NSU). The NSU runs further checks, before encrypting the data and forwarding this data file to BSAIMG. These data are analysed and a draft quarterly report, which includes tables for each performance indicator and explanatory text, is produced by a subgroup of BSAIMG. The draft report is then sent to the National Screening Unit of the Ministry of Health (NSU) and to the six lead providers, for their comment. The six lead providers send their comments on the draft report to the NSU, where they are collated with comments from NSU staff, and sent to the BSAIMG subgroup. These comments, together with the draft report are then sent to all BSAIMG members.

All the BSAIMG members meet to consider the draft report and the comments from lead providers and the NSU, and to decide on the content of the final quarterly report. At least one member of the NSU attends this meeting. Responses to lead provider comments are included in the final quarterly report, or if they are not to be included in the report, in a letter from the NSU to lead providers. Members of the NSU attend a meeting with the BSAIMG subgroup, before the full BSAIMG meeting, to discuss issues that arise from monitoring of BreastScreen Aotearoa by BSAIMG.

Executive Summary

This quarterly report relates to women screened during 1 October to 31 December 2001, and also includes data on assessment and investigations carried out for these women following their screening mammograms. Cumulative totals since the commencement of the second round of screening on 1 January 2001 are also included within the report.

In previous quarterly reports, cumulative totals and percentages have been reported for each two-year screening round. At the start of a new screening round (as in Monitoring Report No. 8) the cumulative totals are for three months, and they increase by three months for each subsequent quarterly report until the end of the two-year screening round. In this quarterly report, a 24-month cumulative total for coverage has also been provided. Where appropriate, 95% confidence intervals have also been provided.

Quality Assurance

While regular monitoring of BreastScreen Aotearoa is important, it is additional to and does not obviate the need for continued quality assurance at lead provider level. Quality assurance in screening programmes is the best way to ensure that women benefit from screening, and to reduce any risks associated with screening. Quality assurance is essential at every stage of the screening pathway, from recruiting women through to explaining treatment options for women diagnosed with breast cancer and their subsequent management (Appendix C).

In this quarter 21,697 women were screened in BreastScreen Aotearoa. This was 7.2% of the eligible women. To meet the performance indicator for screening, of 70% of women in each two-year screening round, 8.75% of women should be screened each quarter. Coverage in this quarter is less than that achieved in the previous quarter, but this may be related to the Christmas break. Cumulative coverage (for the period 1 January 2001 – 31 December 2001) exceeded the target of 35% for two lead providers, BreastScreen South and BreastScreen HealthCare, which is a very encouraging result. Coverage among Maori and Pacific women remained lower in most regions, and this needs to be investigated further by lead providers and the National Screening Unit of the Ministry of Health.

Most women screened in BreastScreen Aotearoa are now undergoing incidence screening. That is, they have already been screened once since the start of BreastScreen Aotearoa. As expected, the referral to assessment rate and the false positive rate are lower for these women than for women screened for the first time. Incidence round specificity was greater than 95% for all lead providers. This is a good result, as it suggests that false positive results are being kept to a minimum. Ideally, specificity in the incidence screening rounds should be above 96%, and for five of the six lead providers this was achieved.

Cancer detection results are encouraging in this quarter, with good results for all lead providers. It is important that consistent data on tumour size and pT classification are collected and entered into computer databases. Some data for two lead providers had to be excluded in this quarter because data on tumour size and pT classification were inconsistent for more than 10% of tumours reported. For the remaining four lead providers over 70% of women diagnosed with breast cancer had no nodal involvement. This is a very good result. More than 10% of cancers detected were DCIS. For one lead provider 27.9% of cancers detected were DCIS. The latest European guidelines², the performance indicator is that 10 - 20% of cancers detected should be DCIS.

The timeliness of reporting the results of screening to women also continues to improve. All lead providers achieved the indicator of 95% of women being notified of their screening results within ten days. Lead providers are to be congratulated on this, because it means that women do not have to wait unduly to find out the results of their screening mammograms. The timeliness of offering assessment procedures and providing results from assessment continues to need improvement. In particular, the timeliness of offering open biopsies to those women who need them should be improved. In this quarter, lead provider results ranged from 19% to 65% of women requiring open biopsy having to wait more than three weeks.

Recommendations

1. For the period 1 January 2001 – 31 December 2001, coverage among Maori and Pacific women was lower than expected. Continued attention should be paid to addressing the lower than expected coverage among Maori and Pacific women.
2. The technical recall rates at both fixed and mobile sites are higher than expected for BreastScreen Central, and there were higher than expected technical recall rates at the mobile sites for BreastScreen Midland and BreastScreen Coast to Coast. Attention should be given to routine quality assurance procedures involving review of films and reasons for technical recalls, to try to reduce these technical recall rates.
3. Routine review of the films of women who have been referred for assessment should continue to be undertaken once the results of the assessment are known. This enables radiologists to assess the true positive and false positive films and assess inter- and intra-rater reliability and validity. In the longer term, routine quality assurance should lead to increased specificity and reduced false positive rates, while maintaining high sensitivity.
4. All lead providers should continue to practise routine quality assurance, such as routine review of management procedures, routine review of films taken by MRTs, routine review of film reading by radiologists, routine review of FNA, core needle, and biopsy results by pathologists, and routine review of the assessment process by the multidisciplinary assessment team. A high quality screening service for New Zealand women, which minimises the adverse effects of screening while achieving maximum breast cancer detection, can only be achieved and maintained with consistent quality assurance and monitoring.
5. It is important that consistent data on tumour size and pT classification are collected and entered into computer databases. Treatment data for two lead providers had to be excluded in this quarter because data on tumour size and pT classification were inconsistent for more than 10% of tumours reported.
6. It is very important to minimise axillary dissection in women with DCIS, because axillary dissection carries a risk of lymphoedema, which can cause significant psychological and physical distress³. This risk is more difficult to avoid in women with invasive cancer, where assessment of nodal status is important for staging.
7. It is important that women diagnosed with breast cancer through BreastScreen Aotearoa receive appropriate treatment without delay. The Ministry of Health should ensure timely access to radiotherapy for those women who need it as part of their treatment.
8. It would be appropriate for all lead providers to agree on a standard approach to obtaining informed consent, so that all women in BreastScreen Aotearoa are given the same information when asked for informed consent, especially for the collection of data about treatment.

Table 1. Summary of Lead Provider and BreastScreen Aotearoa results against indicators from 1 January 2001 to 31 December 2001.

Indicator	LEAD PROVIDERS						
	BSAN	BSM	BSCtoC	BSC	BSS	BSHC	BSA
Coverage (%) for 1 January to 31 December 2001							
<i>- Indicator > 70% (>8.75% per quarter or 35% for the period 1.1.01 to 31.12.01)</i>							
Overall	25.7	28.9	31.5	31.6	37.5	36.0	30.5
Maori	19.0	19.5	19.1	18.5	25.3	19.7	19.6
Pacific	18.2	30.6	20.1	11.5	32.1	17.7	18.4
Other	26.7	30.5	33.3	33.6	37.7	35.8	31.7
(not stated)	218	16	60	14	173	207	688
Technical recall (%)							
<i>- Indicator (Fixed < 0.5%; Mobile <3%)</i>							
Fixed	0.4	0.2	0.2	1.4	0.4	0.5	0.4
Mobile	2.6	4.2	4.7	6.0	0.5	1.4	3.3
Technical repeat (definition 2) (%)							
<i>Indicator <3%</i>							
Fixed	0.8	1.1	0.9	1.7	1.2	1.4	1.1
Mobile	0.4	0.7	1.5	0.5	0.2	0.3	0.6
Assessment (%)							
<i>Indicator – prevalence screen – indicator is <10%, expected value is <7%</i>							
<i>- incidence screen - indicator is <5%, expected value is <4%</i>							
Prevalence	8.9	6.5	6.6	9.7	9.4	10.7	8.6
Incidence	4.7	2.9	3.1	3.7	4.7	2.3	3.8
False positive rate (%)							
<i>Indicator – prevalence round indicator is <9%, expected value <6%</i>							
<i>- incidence round, indicator is <4%, expected indicator <3%</i>							
Prevalence	7.5	5.6	5.6	8.6	8.8	9.7	7.5
Incidence	3.9	2.4	2.6	2.9	4.1	1.9	3.2
Open surgical biopsy rate (%)							
<i>Indicator <1%</i>							
	0.3	0.1	0.1	0.3	0.1	0.3	0.2
Benign biopsy weight (%)							
<i>Indicator 80% or more of benign open biopsies should weigh <20g</i>							
	52.4	54.5	*	68.4	46.2	92.3	57.6

* 80% of the benign open biopsies from BreastScreen Coast to Coast had a default weight recorded within the national monitoring data set, therefore, the result for these lead providers has not been reported.

....continued

Table 1 (continued).

Summary of Lead Provider and BreastScreen Aotearoa results against indicators from 1 January 2001 to 31 December, 2001.

Indicator	LEAD PROVIDERS						BSA
	BSAN	BSM	BSCtoC	BSC	BSS	BSHC	
Needle biopsy rate (%)							
<i>Indicator – none; *Women who have both FNA and core needle procedures.</i>							
FNA only	0.1	0.2	0.1	0.1	0.8	0.3	0.3
Core needle only	1.2	1.0	1.2	1.5	1.7	0.6	1.2
Both*	0.1	0.0	0.0	0.2	0.1	0.0	0.1
Other	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.6	1.2	1.3	1.8	2.6	0.9	1.7
Specificity (%)							
<i>Indicator >93%</i>							
Prevalence	92.3	94.4	94.4	91.3	91.1	90.2	92.4
Incidence	96.0	97.6	97.4	97.1	95.9	98.1	96.8
Detection rate of DCIS and invasive cancer (per thousand women screened)							
<i>Indicator – prevalence - ≥ 6 per 1000 women screened</i>							
<i>- incidence - ≥ 3 per 1000 women screened</i>							
Prevalence	11.1	5.2	6.6	8.5	5.8	7.5	7.9
Incidence	5.6	4.4	4.3	7.9	6.0	3.8	5.4
Time taken providing results of screening (%)							
<i>Indicator – at least 95% notified within 10 days</i>							
	97.9	98.1	98.6	99.2	99.1	93.8	98.1
Time taken from screening visit to first offer of an assessment appointment (%)							
<i>Indicator – at least 90% offered an assessment appointment within 14 working days of their final screening visit</i>							
	83.4	86.5	78.1	93.9	93.2	67.7	86.0
Time taken from assessment to final diagnostic biopsy (%)							
<i>Indicator 1 – at least 90% of women requiring needle biopsy procedure have that procedure completed within 7 days of their assessment</i>							
	85.8	81.3	94.5	95.2	83.3	92.0	86.8
<i>Indicator 2 – at least 90% of women requiring open biopsy procedure offered that procedure within 3 weeks of their assessment</i>							
	45.0	33.3	46.7	63.9	63.3	81.0	54.0
Time taken from final diagnostic biopsy to reporting assessment result (%)							
<i>Indicator – results reported to at least 90% of women within 7 days of final diagnostic biopsy</i>							
	84.2	79.4	90.8	83.2	95.4	86.6	87.7
Time taken from reporting assessment results to first date offered for primary treatment (%)							
<i>Indicator – at least 90% of women offered primary treatment within 3 weeks of the final diagnosis being reported to the women</i>							
	57.4	**	**	81.5	67.9	83.3	66.8

** Data excluded as the tumour size and pT classification were incompatible for more than 10% of records.

1. Data Summary

The key to the tables which appear in this document is:

BSAN = BreastScreen Auckland and North

BSM = BreastScreen Midland

BSCtoC = BreastScreen Coast to Coast

BSC = BreastScreen Central

BSS = BreastScreen South

BSHC = BreastScreen HealthCare

1.1 Registration rate – overall.

The data provided in the national monitoring data set do not provide useful information about the number of women registered with BreastScreen Aotearoa or the invitation process. BSAIMG has calculated registration figures by subtracting the cumulative number of women registered in the latest enrolment detail table of the national monitoring data set from previous quarterly figures. Unfortunately, some lead providers can only register women within their information system when they attend for screening (Monitoring Report no. 7). As lead providers may be entering registration data at different times in the process and there is no data field to record the actual date of registration BSAIMG has ceased reporting registration rates (Recommendation 1, Monitoring Report no. 8).

1.2 Registration rate – ethnicity

See Section 1.1 above.

1.3 Coverage - overall

Definition – this is a population-based measure of the proportion of women 50-64 years of age who have had a screening mammogram in the programme.

Indicator - > 70% of women aged 50-64 are to be screened by the programme within each two year screening cycle.

Overall coverage of eligible women is shown in Table 1.3.

Table 1.3. Overall number of women screened and per cent coverage by lead provider.

Lead provider	Quarterly number screened (%)	Cumulative number screened Round 2 (%)	24 month total 1.1.00 – 31.12.01	Confidence intervals of quarterly coverage
BSAN	7,384 (7.1)	26,973 (25.9)	47,579 (45.7)	7.1 (6.9 – 7.3)
BSM	2,875 (6.0)	14,007 (29.2)	28,798 (59.9)	6.0 (5.8 – 6.2)
BSCtoC	3,078 (7.5)	12,822 (31.4)	21,544 (52.8)	7.5 (7.3 – 7.8)
BSC	2,673 (8.2)	10,442 (32.0)	17,158 (52.5)	8.2 (7.9 – 8.5)
BSS	4,000 (7.4)	20,268 (37.5)	39,688 (73.4)	7.4 (7.2 – 7.6)
BSHC	1,687 (7.6)	8,027 (36.1)	14,981 (67.4)	7.6 (7.3 – 7.9)
TOTAL	21,697 (7.2)	92,539 (30.7)	169,748 (56.2)	7.2 (7.1 – 7.3)

In this quarter, the fourth of 2001, 21,697 women were screened. This was 7.2% of the eligible population. It was lower than that achieved in the third quarter of 2001 (possibly because of the Christmas break) and is below the required quarterly coverage rate necessary to achieve 70% coverage over a two-year screening cycle.

Coverage results for this quarter, expressed as percentages with 95% confidence intervals, are given for each lead provider. The expected coverage is >8.75 per quarter.

The cumulative coverage rate for Round Two of 30.7% was slightly above the rate (27.2%) achieved at the same time in Round One, but this is below the expected 35% for this time period. The estimated coverage for BreastScreen Aotearoa over the last 24 months decreased from 58.9% to 56.2% since the previous quarter reported. Coverage varied between lead providers from a low of 45.7% for BreastScreen Auckland and North and a high of 75.4% for BreastScreen South. One lead provider, BreastScreen South (73.9%), reached the indicator of 70% coverage and BreastScreen HealthCare was slightly below the indicator at 67.4%.

1.4 Coverage - by age group

The number of women screened and coverage for the 50-54, 55-59 and 60-64 year age groups are shown below for the quarter (Table 1.4a) and for cumulative numbers of women screened (Table 1.4b).

Table 1.4.a. Age specific number of women screened and quarterly coverage by lead provider.

Lead provider	Quarterly number screened (% of projected population)			
	50-54	55-59	60-64	Total
BSAN	2,918 (6.8)	2,446 (7.1)	2,020 (7.5)	7,384 (7.1)
BSM	1,242 (6.7)	828 (5.3)	805 (5.9)	2,875 (6.0)
BSCtoC	1,186 (7.3)	997 (7.6)	895 (7.8)	3,078 (7.5)
BSC	1,065 (7.9)	902 (8.4)	706 (8.2)	2,673 (8.2)
BSS	1,079 (7.8)	1,268 (7.3)	1,023 (6.9)	4,000 (7.4)
BSHC	6,60 (7.3)	564 (8.0)	463 (7.4)	1,687 (7.6)
TOTAL	8,780 (7.2)	7,005 (7.1)	5,912 (7.2)	21,697 (7.2)

Table 1.4.b. Age specific number of women screened and cumulative Round Two coverage (from 1 /1/01) by lead provider.

Lead provider	Cumulative number screened – Round 2. (% of projected population)			
	50-54	55-59	60-64	Total
BSAN	1,0740 (25.1)	8,849 (25.8)	7,384 (27.5)	26,973 (25.9)
BSM	5,333 (28.6)	4,099 (26.1)	4,575 (33.3)	14,007 (29.2)
BSCtoC	4,860 (30.0)	4,166 (31.7)	3,796 (33.1)	12,822 (31.4)
BSC	4,031 (30.0)	3,563 (33.4)	2,848 (33.3)	10,442 (32.0)
BSS	8,548 (39.1)	6,295 (36.1)	5,425 (36.7)	20,268 (37.5)
BSHC	3,126 (34.8)	2,621 (37.4)	2,280 (36.7)	8,027 (36.1)
TOTAL	36,638 (30.0)	29,593 (30.1)	26,308 (32.2)	92,539 (30.7)

Coverage by age continues to be consistent across each of the three age groups for both quarterly and cumulative results.

1.5 Coverage - ethnicity

The number of women screened and coverage by ethnic group for the quarter (Table 1.5a) and cumulative numbers (Table 1.5b) are shown below.

Table 1.5a. Quarterly number of women screened and per cent coverage by ethnic group.

Lead provider	Quarterly number screened (% of projected population)				
	Maori	Pacific	Other	Not stated	Total
BSAN	515 (5.8)	386 (5.8)	6,413 (7.1)	70	7,384 (7.0)
BSM	431 (6.1)	20 (4.1)	2,423 (5.9)	1	2,875 (5.9)
BSCtoC	227 (4.3)	13 (3.8)	2,820 (8.0)	18	3,078 (7.6)
BSC	130 (5.6)	71 (3.7)	2,470 (8.5)	2	2,673 (8.1)
BSS	107 (5.1)	19 (5.2)	3,828 (7.4)	46	4,000 (7.4)
BSHC	34 (3.6)	4 (3.5)	1,625 (7.6)	24	1,687 (7.6)
TOTAL	1,444 (5.4)	513 (5.4)	19,579 (7.3)	161	21,697 (7.1)

Table 1.5b. Cumulative number of women screened and per cent coverage by ethnic group.

Lead provider	Cumulative number screened – Round 2 (% of projected population)				
	Maori	Pacific	Other	Not stated	Total
BSAN	1,682 (19.0)	1,214 (18.2)	23,859 (26.7)	218	26,973 (25.7)
BSM	1,374 (19.5)	148 (30.6)	12,469 (30.5)	16	14,007 (28.9)
BSCtoC	995 (19.1)	68 (20.1)	11,699 (33.3)	60	12,822 (31.5)
BSC	432 (18.5)	173 (11.5)	9,823 (33.6)	14	10,442 (31.6)
BSS	533 (25.3)	117 (32.1)	19,445 (37.7)	173	20,268 (37.5)
BSHC	187 (19.7)	20 (17.7)	7,613 (35.8)	207	8,027 (36.0)
TOTAL	5,203 (19.6)	1,740 (18.4)	84,908 (31.7)	688	92,539 (30.5)

Coverage among Maori and Pacific women remains lower than anticipated for most lead provider regions, and this requires improvement by lead providers and the National Screening Unit of the Ministry of Health (see Recommendation 2, Monitoring Report no. 9). BreastScreen Central continues to have lower coverage of Pacific women (see Recommendation 1, Monitoring Report no. 10).

2. Provision of high quality screening and assessment

2.1 Screened women who have no more than four films taken.

Indicator - Minimum of 80% of women screened have four films or less.

From the data available, the number of films per women by lead provider and mobile and fixed screening centres are shown in Table 2.1.

Table 2.1. Proportion of women having four films or less at screening by lead provider.

Lead Provider	Quarter (%)		Cumulative rate (%)	
	Fixed	Mobile	Fixed	Mobile
BSAN	85.6	95.3	84.6	95.4
BSM	87.4	77.7	88.2	85.0
BSCtoC	91.3	90.8	89.7	90.8
BSC	75.4	88.1	77.8	92.1
BSS	85.4	78.3	84.7	83.4
BSHC	77.1	87.7	75.3	79.1
TOTAL	85.1	86.7	84.5	87.5

The proportion of women having four films at screening continues to be influenced by lead providers' choice of large or small films for screening. BreastScreen Midland and BreastScreen South's quarterly results were below the indicator for women screened at mobile sites. BreastScreen Central and BreastScreen HealthCare's quarterly and cumulative results for fixed sites were below the indicator.

2.2 Technical recall rate

Definition - Number of women recalled for technical repeats as a percentage of number screened.

Indicator - Mobile < 3%
- Fixed < 0.5%

The definition given above has been taken from the Data Management Manual and is different from that listed in the Interim National Quality Standards. The number of women recalled for technical reasons as a percentage of the number of women screened is shown in Table 2.2.

Table 2.2. Technical recall rates per 100 women screened (per cent) by lead provider.

Lead Provider	Quarter (%)		Cumulative rate (%)	
	Fixed	Mobile	Fixed	Mobile
BSAN	0.4	2.6	0.4	2.6
BSM	0.4	4.5	0.2	4.2
BSCtoC	0.3	3.5	0.2	4.7
BSC	1.6	8.6	1.4	6.0
BSS	0.3	0.7	0.4	0.5
BSHC	0.6	1.5	0.5	1.4
TOTAL	0.5	3.9	0.4	3.3

It is important that low technical recall rates are maintained so that women are not inconvenienced by being recalled for technical reasons.

It is difficult to interpret these results with respect to technical repeats and rejected films, however, as different definitions of “rejected films” are used. Some screening units do not reject films, even films regarded as technically sub-optimal that require extra films to be taken, in case the sub-optimal film may provide information for the reading radiologists. Thus, there may be a mismatch between the number of women recalled for technical reasons and the number of films rejected, and between the number of women recalled and the technical repeat rate.

The technical recall rates at both fixed and mobile sites are higher than expected for BreastScreen Central. There were higher than expected technical recall rates at the mobile sites for BreastScreen Midland and BreastScreen Coast to Coast. Attention should be given to routine quality assurance procedures involving review of films and reasons for technical recalls to reduce these technical recall rates.

2.3 Technical repeat rate

2.3.1 Technical repeat rate – Definition 1

Definition 1 (from the Data Management Manual) – Number of women with technical repeats (including technical recalls) as a percentage of number screened.

Indicator - <3%

BSAIMG consider that the definition of technical repeats in the Data Management Manual is not useful. This will be addressed in the Ministry of Health review of the Interim National Quality Standards. The definition preferred by BSAIMG, is Definition 2, the number of technical repeat films as a percentage of the total number of films taken.

2.3.2 Technical repeat rate – Definition 2

Definition 2 - Number of technical repeat films as a percentage of the total number of films taken.

Indicator - < 3%.

The technical repeat rate as defined by the monitoring group (definition 2) is shown in Table 2.3.2.

Table 2.3.2. Technical repeat rate per 100 films taken by lead provider.

Lead Provider	Quarterly technical repeat rate		Cumulative technical repeat rate	
	Fixed	Mobile	Fixed	Mobile
BSAN	0.8	0.1	0.8	0.4
BSM	1.0	1.2	1.1	0.7
BSCtoC	0.7	1.2	0.9	1.5
BSC	1.7	0.1	1.7	0.5
BSS	1.1	0.4	1.2	0.2
BSHC	1.3	0.0	1.4	0.3
TOTAL	1.0	0.5	1.1	0.6

All lead providers met this performance indicator for both quarterly and cumulative results (see also Table 2.2 and associated text).

2.4 Assessment rate

Definition - Number referred to assessment as a percentage of number screened.

Indicator – prevalence screen: indicator is < 10% and the expected value is < 7%
 – incidence screen: indicator is < 5% and the expected value is < 4%

The rates of referral to assessment are shown in Table 2.4 below.

Table 2.4. The rate of referral to assessment per 100 women screened by lead provider.

Lead provider	Quarterly assessment rate (n)		Cumulative assessment rate (n)	
	Prevalence	Incidence	Prevalence	Incidence
BSAN	10.4 (250)	5.1 (256)	8.9 (967)	4.7 (752)
BSM	7.6 (83)	3.3 (58)	6.5 (341)	2.9 (257)
BSCtoC	5.9 (57)	3.0 (64)	6.6 (288)	3.1 (264)
BSC	9.6 (87)	3.4 (60)	9.7 (368)	3.7 (247)
BSS	9.7 (128)	4.2 (113)	9.4 (772)	4.7 (572)
BSHC	5.6 (16)	1.3 (18)	10.7 (186)	2.3 (145)
TOTAL	8.9 (621)	3.9 (569)	8.6 (2,916)	3.8 (2,237)

The referral rates with 95% confidence intervals for BSA for this quarter were:

Prevalence screens 8.9% (8.2 – 9.6)

Incidence screens 3.9% (3.5 – 4.2)

BreastScreen Auckland and North exceeded the expected referral rate to assessment for prevalent screens for women screened in the quarter, but the cumulative result met the expected rate. BreastScreen Auckland and North just failed to meet the indicator for referral to assessment rate for incidence screens in the previous quarter.

BreastScreen HealthCare achieved an assessment rate for prevalence screens within the expected indicator of less than 7% for the first time this quarter. This continuing improvement is a reflection of increased performance feedback to radiologists, including regular review of false positive screens and all women referred to assessment. All lead providers, except BreastScreen HealthCare met the indicator for cumulative rate of referral to assessment for prevalent screens.

2.5 Outstanding assessment records of the national monitoring data set

The National Screening Unit (NSU) advised BSAIMG that there were 59 assessment records outstanding in this quarter. Of these 59 women, 26 have since completed assessment and the records have been sent to NZHIS for inclusion in the national monitoring data set. Of the remaining records, 12 records remain incomplete, two records are undergoing NHI maintenance, 13 women are on extended assessment, five have exited the programme, and one has chosen to go to a private provider.

2.6 False positive rate

Definition - Number with false positive screening results as a percentage of number screened.

Indicator -prevalence round: indicator is < 9% and the expected value is < 6%
 -incidence round: indicator is < 4% and the expected value is < 3%

False positive rates are shown in Table 2.6.

Table 2.6. False positive rate per 100 women screened by lead provider.

Lead provider	Quarterly false positive rate (n)		Cumulative false positive rate (n)	
	Prevalence	Incidence	Prevalence	Incidence
BSAN	8.7	4.2	7.5	3.9
BSM	6.5	2.9	5.6	2.4
BSCtoC	4.7	2.2	5.5	2.6
BSC	8.2	2.7	8.6	2.9
BSS	9.2	3.4	8.8	4.1
BSHC	3.8	0.7	9.7	1.9
TOTAL	7.6	3.1	7.5	3.2

The false positive rates with 95% confidence intervals for BSA for this quarter were:

Prevalence screens 7.6% (6.9 – 8.2)

Incidence screens 3.1% (2.8 – 3.4)

All lead providers except BreastScreen South met the performance indicator for the false positive rate for prevalence screening in this quarter. All lead providers, except BreastScreen Auckland and North met the incidence screening performance indicator for the false positive rate. BreastScreen HealthCare continues to reduce its false positive rate for prevalent screens.

2.7 Open surgical biopsy rate

Definition - Number of women having open biopsy as a percentage of women screened.

Indicator - < 1%

The open surgical biopsy rate is shown in Table 2.7.

Table 2.7. Number and rate of open surgical biopsy per 100 women screened by lead provider.

Lead Provider	Quarterly open surgical biopsy rate per 100 women screened (number of women)	Cumulative open surgical biopsy rate per 100 women screened (number of women)
BSAN	0.2 (17)	0.3 (80)
BSM	0.1 (2)	0.1 (18)
BSCtoC	0.0 (0)	0.1 (15)
BSC	0.4 (12)	0.3 (36)
BSS	0.03 (1)	0.1 (30)
BSHC	0.5 (8)	0.3 (21)
TOTAL	0.2 (40)	0.2 (200)

All lead providers met the indicator for the number of open surgical biopsies per 100 women screened.

2.8 Benign biopsy weight

Definition - Number with benign open biopsy where weight of benign lesion is less than 20 grams as a percentage of the number with benign open biopsy.

Indicator - 80% or more of open biopsies (benign result) should weigh < 20gm.

The number of women having benign open biopsy where the lesion weighed less than 20 gm is recorded in Table 2.8.

Table 2.8. Number and percent of benign open biopsies, which weigh <20gm by lead provider.

Lead Provider	Quarterly percent of benign biopsies weighing less than 20gm (n)	Cumulative percent of benign biopsies weighing less than 20gm (n)
BSAN	41.7 (5)	52.4 (33)
BSM	*	54.5 (6)
BSCtoC	**	*
BSC	40.0 (2)	68.4 (13)
BSS	0.0 (0)	46.2 (12)
BSHC	100.0 (3)	92.3 (12)
TOTAL	47.6 (10)	57.6 (76)

* 80% of the benign open biopsies had a default weight recorded within the national monitoring data set therefore the record has not been reported.

** No open biopsy recorded for the quarter

It was recommended in Monitoring Report no. 9 that this indicator no longer be reported but we await the conclusions of the review of the Interim National Quality Standards.

2.9 Needle biopsy rates

Definition

- Number of women undergoing fine needle aspiration (FNA) as a percentage of the number screened.
- Number of women undergoing core biopsy as a percentage of number screened.

Indicator - None set

The number of women having needle biopsies for the quarter and the cumulative total for Round 2 is shown in Tables 2.9a and Table 2.9b.

Table 2.9a. Quarterly rate of needle biopsy per 100 women screened and numbers of women undergoing needle biopsy (n) by lead provider.

Lead Provider	Quarterly Totals				
	FNA only % (n)	Core needle only % (n)	Both* % (n)	Other % (n)	Total
BSAN	0.3 (19)	1.0 (76)	0.2 (12)	0.1 (4)	1.5 (111)
BSM	0.2 (6)	0.8 (24)	0.1 (4)	0.0 (0)	1.2 (34)
BSCtoC	0.1 (2)	1.2 (37)	0.0 (0)	0.0 (0)	1.3 (39)
BSC	0.1 (3)	1.4 (37)	0.1 (2)	0.0 (0)	1.6 (42)
BSS	0.8 (31)	1.4 (57)	0.1 (5)	0.0 (0)	2.3 (93)
BSHC	0.2 (3)	0.7 (11)	0.1 (1)	0.0 (0)	0.9 (15)
Total	0.3 (64)	1.1 (242)	0.1 (24)	0.0 (4)	1.5 (334)

As expected the rate of both core needle and FNA biopsies tends to reflect the rate of referral to assessment. BreastScreen South has higher rates of FNA biopsy than other lead providers.

Table 2.9b. Cumulative rate of needle biopsy per 100 women screened and numbers of women undergoing needle biopsy (n) by lead provider for Round 2.

Lead Provider	Cumulative Totals				
	FNA only % (n)	Core needle only % (n)	Both* % (n)	Other % (n)	Total % (n)
BSAN	0.1 (36)	1.2 (319)	0.1 (35)	0.1 (40)	1.6 (430)
BSM	0.2 (22)	1.0 (141)	0.0 (5)	0.0 (3)	1.2 (171)
BSCtoC	0.1 (12)	1.2 (153)	0.0 (0)	0.0 (0)	1.3 (165)
BSC	0.1 (13)	1.5 (154)	0.2 (20)	0.0 (0)	1.8 (187)
BSS	0.8 (162)	1.7 (336)	0.1 (26)	0.0 (0)	2.6 (524)
BSHC	0.3 (25)	0.6 (49)	0.0 (1)	0.0 (0)	0.9 (75)
TOTAL	0.3 (270)	1.2 (1,152)	0.1 (87)	0.0 (43)	1.7 (1,552)

* Women who have both FNA and core needle procedures

The number of women who had needle and open biopsy procedures as a percentage of the number of women referred to assessment for the quarter and cumulatively is shown in Table 2.9c. It should be noted that the totals in table 2.9c differ from the totals in tables 2.9a and 2.9b, because this table includes all biopsy procedures (needle and open biopsies).

Table 2.9c Number of women having biopsy procedures as a percentage of the women referred to assessment.

Lead provider	Number of women with biopsy procedures as a percentage of the number referred to assessment (number of women)	
	Quarterly total	Cumulative total
BSAN	23.5 (119)	27.1 (466)
BSM	24.1 (34)	28.8 (172)
BSCtoC	32.2 (39)	31.5 (174)
BSC	28.6 (42)	31.5 (192)
BSS	38.6 (93)	39.1 (525)
BSHC	44.1 (15)	24.8 (82)
Total	28.7 (342)	31.3 (1,611)

BreastScreen South had a higher cumulative proportion of women attending assessment who proceeded to either needle or open biopsy procedures.

2.10 Specificity of the Programme

Definition - Number with true negative screening results as a percentage of this number plus the number with false positive screening results.

Indicator - > 93%

The estimated specificity for each lead provider is shown in Table 2.10.

Table 2.10. Specificity of the programme by lead provider.

Lead provider	Quarterly specificity (%)		Cumulative specificity (%)	
	Prevalence	Incidence	Prevalence	Incidence
BSAN	91.2	95.8	92.3	96.0
BSM	93.4	97.1	94.4	97.6
BSCtoC	95.2	97.8	94.4	97.4
BSC	91.7	97.3	91.3	97.1
BSS	90.7	96.5	91.1	95.9
BSHC	96.1	99.3	90.2	98.1
TOTAL	92.3	96.9	92.4	96.8

In Monitoring Report no. 9 it was recommended that the performance indicator for specificity in incidence screening be set at >96%. This is consistent with the incidence screening performance indicator for the false positive rate. In this quarter all lead providers except BreastScreen Auckland and North achieved specificity of >96% for incident screening.

Specificity for prevalence screening tends to be lower, partly because the radiologists do not have access to earlier mammograms for comparison, and this is seen in the results for this quarter. BreastScreen Auckland and North, BreastScreen Central and BreastScreen South did not meet the indicator for prevalent screening in this quarter. As recommended in Monitoring Report no. 10 (Recommendation 5) lead providers should monitor prevalence screening specificity and continue to use routine film review of women after result of assessment is known as part of their quality assurance procedures. This enables radiologists to assess the true positive and false positive films and assess inter- and intra-radiologist reliability and validity. In the longer term, routine quality assurance should lead to increased specificity and minimise false positive rates.

3. Early detection of DCIS or breast cancer

3.1 Detection rate of DCIS or breast cancer

Definition – number with diagnosed DCIS or breast cancer per 1000 women screened.

Indicator - prevalence round: indicator is ≥ 6 per 1000 women screened
 - incidence round: indicator is ≥ 3 per 1000 women screened

The number of women recorded with a final diagnosis of DCIS or invasive breast cancer is recorded in Table 3.1.

Table 3.1. Detection rate of DCIS and invasive breast cancer by lead provider per 1000 women screened.

Lead provider	Quarterly cancer detection rate (n)		Cumulative cancer detection rate Round 2 (n)	
	Prevalence	Incidence	Prevalence	Incidence
BSAN	10.4 (25)	6.2 (31)	11.1 (120)	5.6 (90)
BSM	2.7 (3)	2.8 (5)	5.2 (27)	4.4 (39)
BSCtoC	5.2 (5)	5.7 (12)	6.6 (29)	4.3 (36)
BSC	10.0 (9)	6.2 (11)	8.5 (32)	7.9 (53)
BSS	3.8 (5)	6.7 (18)	5.8 (47)	6.0 (72)
BSHC	14.0 (4)	5.7 (8)	7.5 (13)	3.8 (24)
TOTAL	7.3 (51)	5.8 (85)	7.9 (268)	5.4 (314)

The detection rates with 95% confidence intervals for BSA for this quarter were:

Prevalence 7.3 per 1,000 women screened (5.3 – 9.3)

Incidence 6.0 per 1,000 women screened (4.7 – 6.8)

All lead providers met the breast cancer detection rate for incidence screening, both for the last quarter, and for the Round Two cumulative total. BreastScreen Midland and BreastScreen South did not meet the indicator for prevalent screens either for the quarter or cumulative totals. BreastScreen Coast to Coast was below the indicator for prevalence screening in this quarter. The frequency with which DCIS and breast cancer are diagnosed over the three-month period of any quarter may, by chance, result in occurrence of a cancer detection rate below the indicators.

The quarterly and cumulative referral to assessment, specificity, false positive rate and detection rate of DCIS and invasive breast cancer by prevalence and incidence screen are summarised in Table 3.1.1a, Table 3.1.1b, Table 3.1.1c and Table 3.1.1d.

Table 3.1.1a. Referral to assessment, specificity, false positive rate and detection rate for prevalence screening of DCIS and invasive cancer rate by lead provider for the quarter 1.10.01 – 31.12.01.

Lead provider	Referral to assessment per 100 women screened	Specificity (%)	False positive rate per 100 women screened	Detection rate per 1000 women screened
BSAN	10.4	91.2	8.7	10.4
BSM	7.6	93.4	6.5	2.7
BSCtoC	5.9	95.2	4.7	5.2
BSC	9.6	91.7	8.2	10.0
BSS	9.7	90.7	9.2	3.8
BSHC	5.6	96.1	3.8	14.0
TOTAL	8.9	92.3	7.6	7.3

Table 3.1.1b. Referral to assessment, specificity, false positive rate and detection rate for incidence screening of DCIS and invasive breast cancer by lead provider for the quarter 1.10.01 – 31.12.01.

Lead provider	Referral to assessment per 100 women screened	Specificity (%)	False positive rate per 100 women screened	Detection rate per 1000 women screened
BSAN	5.1	95.8	4.2	6.2
BSM	3.3	97.1	2.9	4.5
BSCtoC	3.0	97.8	2.2	5.7
BSC	3.4	97.3	2.7	6.2
BSS	4.2	96.5	3.4	6.7
BSHC	1.3	99.3	0.7	5.7
TOTAL	3.9	96.9	3.1	6.0

Table 3.1.1c. Referral to assessment, specificity, false positive rate and detection rate for prevalence screening of DCIS and invasive cancer rate by lead provider for the period 1.1.01 – 31.12.01.

Lead provider	Referral to assessment per 100 women screened	Specificity (%)	False positive rate per 100 women screened	Detection rate per 1000 women screened
BSAN	8.9	92.3	7.5	11.1
BSM	6.5	94.4	5.6	5.2
BSCtoC	6.6	94.4	5.5	6.6
BSC	9.7	91.3	8.6	8.5
BSS	9.4	91.1	8.8	5.8
BSHC	10.7	90.2	9.7	7.5
TOTAL	8.6	92.4	7.5	7.9

In general, high referral to assessment rates are associated with high false positive rates (Table 3.1.1a, Table 3.1.1b, Table 3.1.1c).

Table 3.1.1d. Referral to assessment, specificity, false positive rate and detection rate for incidence screening of DCIS and invasive breast cancer by lead provider for the period 1.1.01 – 31.12.01.

Lead provider	Referral to assessment per 100 women screened	Specificity (%)	False positive rate per 100 women screened	Detection rate per 1000 women screened
BSAN	4.7	96.0	3.9	5.6
BSM	2.9	97.6	2.4	4.4
BSCtoC	3.1	97.4	2.6	4.3
BSC	3.7	97.1	2.9	7.9
BSS	4.7	95.9	4.1	6.0
BSHC	2.3	98.1	1.9	3.8
TOTAL	3.8	96.8	3.2	5.4

The cancer detection rate is only weakly associated with the referral to assessment rate (Table 3.1.1d).

3.2 DCIS and invasive cancer

There is an inevitable delay in the recording of details about DCIS or invasive breast cancer diagnosed as a result of screening, due to the time required to arrange treatment and the subsequent recording of treatment data by lead providers. To make allowance for this delay cancer details recorded within this quarterly monitoring report have been provided for women screened up to the end of March 2001 (six months prior to the start of this quarter).

All lead providers achieved 90% completion of cancer detail records from the commencement of screening to the end of March 2001.

Table 3.2.1 shows the available data for each lead provider.

Table 3.2.1 Completion status of pT classification for women with DCIS and invasive breast cancer (for those who have consented to the collection of data relating to cancer detail and treatment) detected for the period 1.12.1998 - 31.3.2001.

Lead provider	BSAN	BSM	BSC to C	BSC	BSS	BSHC	TOTAL
DCIS and invasive breast cancer detected	410	157	154	133	274	100	1228
Did not consent to treatment	3	0	0	2	0	0	5
Gone overseas for treatment	0	0	0	0	1	0	1
Refused consent for data to be collected	2	0	0	1	16	3	22
Treatment data not available – private provider	0	0	2	0	0	0	2
Available records	405	157	152	130	257	97	1,198
pT classification recorded in NMDS	405	148	144	129	252	93	1,171
Completion of pT (%)	100.0	94.3	93.5	99.2	98.1	95.9	97.8

Of the 1,228 women recorded with a diagnosis of DCIS or cancer from the commencement of BreastScreen Aotearoa to the 31 March 2001, five women did not consent to treatment, 22 women refused consent for the collection of data about their treatment, one woman went overseas for treatment and treatment data for two women, who attended a private provider, were not available.

The monitoring of treatment data is necessary to ensure the effectiveness of BreastScreen Aotearoa. However, the consent of women is required for the collection of this data. Sixteen of the 22 women who refused consent were from a one lead provider. It would be appropriate for lead providers to agree to a standard approach for obtaining informed consent, so that all women in BreastScreen Aotearoa are given the same information when asked for informed consent for the collection of data about treatment.

One of the most important ways to monitor the programme, and estimate its likely impact on breast cancer mortality, is to examine the stage distribution, size, and grade of tumours detected, and the absolute rate of advanced cancers detected. Only then can results from BreastScreen Aotearoa be compared with the results of randomised controlled trials of breast screening and overseas programmes.

This quarterly report provides information on the primary tumour classification (pT classification) and nodal status of tumours detected in BreastScreen Aotearoa. The UICC TNM staging of tumours detected in BreastScreen Aotearoa will be reported in the next BSAIMG monitoring report.

Details of the cancers recorded in the national monitoring data set are summarised below. The UICC pT system for classifying primary tumours is:

- TX Primary tumour cannot be assessed
- T0 No evidence of primary tumour
- Tis Carcinoma in situ: intraductal carcinoma, lobular carcinoma in situ or Pagets disease of the nipple with no tumour
- T1 Tumour 2cm or less in greatest dimension
 - pT1a 0.5 cm or smaller
 - pT1b more than 0.5cm but not more than 1cm in greatest dimension
 - pT1c more than 1 cm but not more than 2cm in greatest dimension
- T2 Tumour more than 2cm but not more than 5cm in greatest dimension
- T3 Tumour more than 5cm in greatest dimension
- T4 Tumour of any size with direct extension to chest wall or skin

Subcategories for the classification of pT4 tumours exist within the UICC pT system. These are listed below but it is not necessary to record these subcategories in the national monitoring data set.

- T4a Extension to chest wall
- T4b Edema (including peau d'orange), ulceration of the skin of the breast, or satellite skin nodules confined to the same breast
- T4c Both (T4a and T4b)
- T4c Inflammatory carcinoma.

For the purposes of BSAIMG monitoring reports the number of invasive breast cancers has been calculated by combining pT1a, pT1b, pT1c, pT2, pT3 and pT4. PTis (DCIS) is not invasive breast cancer.

The pT classification of the primary tumour for DCIS and cancers detected for which information was available is shown in Table 3.2.2.

Table 3.2.2

Reported primary tumour classification by lead provider for the period 1.12.98 – 31.3.01.

Primary tumour (pT) classification	BSAN	BSM	BSC to C	BSC	BSS	BSHC	Total (%)
<i>DCIS (per cent of all tumours)</i>							
pTis (DCIS)	113 (27.9)	*	*	20 (15.5)	53 (21.0)	16 (17.2)	202 (23.0)
<i>Invasive cancers (per cent of invasive cancers)</i>							
pTX*	4 (1.4)	*	*	0 (0.0)	0 (0.0)	00 (0.0)	4 (0.6)
pT0	0 (0.0)	*	*	0 (0.0)	1 (0.5)	0 (0.0)	1 (0.1)
pT1a	40 (13.7)	*	*	8 (7.3)	24 (12.1)	10 (12.9)	82 (12.1)
pT1b	83 (28.4)	*	*	32 (29.4)	51 (25.6)	29 (37.7)	195 (28.8)
pT1c	102 (34.9)	*	*	56 (51.4)	89 (44.7)	28 (36.4)	275 (40.6)
pT2	51 (17.5)	*	*	13 (11.9)	31 (15.6)	8 (10.4)	103 (15.2)
pT3	6 (2.0)	*	*	0 (0.0)	2 (1.0)	2 (2.6)	10 (1.5)
pT4	6 (2.0)	*	*	0 (0.0)	1 (0.5)	0 (0.0)	7 (1.0)
Total invasive	292 (100)	*	*	109 (100)	199 (100)	77 (100)	677 (100)
TOTAL DCIS and invasive	405	*	*	129	252	93	879

* Data excluded as the tumour size and pT classification were incompatible.

** Primary tumour cannot be assessed.

[excludes BSM and BSC to C

There were 1,228 women diagnosed with invasive breast cancer and DCIS in BreastScreen Aotearoa between December 1998 and 31 March 2001. Of these 1,228 women data was theoretically available on 1,198 women, but for only 1,171 were pT classifications recorded in the national monitoring data set (Table 3.2.1).

There were 104 women (11.3%) where the size of the invasive component recorded was incompatible with the pT classification recorded. Two lead providers, BreastScreen Midland and BreastScreen Coast to Coast had a significant proportion

of tumours where the size of the tumour and the pT classification were incompatible, so their data for DCIS and invasive cancers detected have been excluded from the detail of tables summarising cancer detected. This was caused by an internal data recording problem that has since been rectified. Data for all lead providers should be available for the next monitoring report.

After exclusion of the data from BreastScreen Midland and BreastScreen Coast to Coast for DCIS and invasive cancer, there were a total of 879 women with breast cancer and DCIS recorded for the remaining lead providers. Of these 879 women, 202 (23.0%) had a diagnosis of DCIS only and 77.0% had invasive breast cancer detected.

3.3 Invasive cancer

The number of women with invasive cancer recorded in the national monitoring data set as a proportion of the total number screened is recorded in Table 3.3.1.

Definition – number of women screened who are diagnosed with invasive breast cancer per 1000 women screened.

Indicator ≥ 4.8 per 1000 women screened

The invasive cancer detection rate per 1000 women screened is shown in Table 3.3.1.

Table 3.3.1 Invasive cancer detection rate by lead provider per 1000 women screened for the period 1.12.98 – 31.3.01.

Lead Provider	Cumulative invasive cancer detection rate per 1000 women (number with invasive cancer detected)
BSAN	6.3 (292)
BSM	4.3 (120)
BSCtoC	5.6 (120)
BSC	6.8 (109)
BSS	5.4 (199)
BSHC	4.9 (77)
TOTAL	5.6 (917)

All lead providers except BreastScreen Midland met the indicator for the invasive cancer detection rate for the period ending March 31, 2001.

Table 3.3.2 shows the nodal involvement of women with breast cancer recorded in the national monitoring data set.

The regional lymph nodes are classified as follows:

pNX	Regional lymph node metastasis cannot be assessed
pN0	No regional lymph node metastasis
pN1	Metastasis to one or more movable ipsilateral axillary nodes
pN1a	Only micro metastasis (none larger than 0.2cm)
pN1b	Metastasis to one or more lymph nodes, any of which is larger than 0.2cm
pN1bii	Metastasis in one to three lymph nodes, any of which is larger than 0.2cm and all less than 2cm in greatest dimension
pN1biii	Extension of tumour beyond the capsule of a lymph node metastasis less than 2cm in greatest dimension
pN1biv	Metastasis to a lymph node 2cm or more in greatest dimension
pN2	Metastasis to ipsilateral axillary lymph nodes that are fixed to one another or to other structures
pN3	Metastasis to one or more ipsilateral internal mammary

Table 3.3.2 Nodal status of women with invasive breast cancer by pT classification by lead provider for the period 1.12.98 – 31.12.00.

Lead provider	Classification					
	pT	PNX (%)	pN0 (%)	pN1 (%)	pN2 (%)	Total (%)
BSAN	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	1a	3 (7.5)	37 (92.5)	0 (0.0)	0 (0.0)	40 (100)
	1b	2 (2.4)	70 (84.3)	11 (13.3)	0 (0.0)	83 (100)
	1c	0 (0.0)	77 (75.5)	25 (24.5)	0 (0.0)	102 (100)
	2	1 (1.9)	26 (50.9)	24 (47.1)	0 (0.0)	51 (100)
	3	0 (0.0)	0 (0.0)	6 (100)	0 (0.0)	6 (100)
	4	1 (16.7)	3 (50.0)	2 (33.3)	0 (0.0)	6 (100)
	X**	4 (100)	0 (0.0)	0 (0.0)	0 (0.0)	4 (100)
	Total	11 (3.8)	213 (72.9)	68 (23.3)	0 (0.0)	292 (100)
BSM	*	*	*	*	*	*
BSCtoC	*	*	*	*	*	*
BSC	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	1a	1 (12.5)	7 (87.5)	0 (0.0)	0 (0.0)	8 (100)
	1b	0 (0.0)	27 (32.1)	5 (15.6)	0 (0.0)	32 (100)
	1c	0 (0.0)	43 (51.2)	13 (23.2)	0 (0.0)	56 (100)
	2	0 (0.0)	7 (8.3)	6 (46.2)	0 (0.0)	13 (100)
	3	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	4	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	1 (0.9)	84 (77.1)	24 (22.0)	0 (0.0)	109 (100)
BSS	0	0 (0.0)	21 (95.5)	1 (4.5)	0 (0.0)	22 (100)
	1a	1 (33.3)	0 (0.0)	2 (66.7)	0 (0.0)	3 (100)
	1b	1 (33.3)	43 (84.3)	7 (13.7)	0 (0.0)	51 (100)
	1c	1 (33.3)	68 (76.4)	19 (21.3)	1 (1.1)	89 (100)
	2	0 (0.0)	13 (41.9)	18 (58.1)	0 (0.0)	31 (100)
	3	0 (0.0)	1 (50.0)	0 (0.0)	1 (50.0)	2 (1.0)
	4	0 (0.0)	0 (0.0)	0 (0.0)	1 (100)	1 (100)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	3 (1.5)	146 (73.4)	47 (23.6)	3 (1.5)	199 (100)
BSHC	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	1a	1 (100)	7 (70.0)	2 (20.0)	0 (0.0)	10 (100)
	1b	0 (0.0)	27 (93.1)	2 (6.9)	0 (0.0)	29 (100)
	1c	0 (0.0)	21 (75.0)	7 (25.0)	0 (0.0)	28 (100)
	2	0 (0.0)	5 (62.5)	3 (37.5)	0 (0.0)	8 (100)
	3	0 (0.0)	1 (50.0)	1 (50.0)	0 (0.0)	2 (100)
	4	0 (0.0)	(0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	1 (1.3)	61 (79.2)	15 (19.5)	(0.0)	77 (100)
Grand total		16 (2.4)	504 (74.4)	154 (22.7)	3 (0.4)	677 (100)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

** Primary tumour can not be assessed.

Over 74% of the women with invasive breast cancer detected had no nodal involvement.

Distant metastasis (M) is classified as follows:

- MX Presence of distant metastasis cannot be assessed
M0 No distant metastasis
M1 Distant metastasis (including metastases to one or more ipsilateral supraclavicular nodes)

Table 3.3.3 shows the presence of distant metastatic disease for women with invasive breast cancer.

Table 3.3.3 Distant metastatic disease for women with invasive breast cancer by pT classification by lead provider for the period 1.12.98 – 31.3.01.

Lead provider	Classification				
	pT	PMX (%)	pM0 (%)	pM1 (%)	Total (%)
BSAN	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	1a	36 (90.0)	4 (10.0)	0 (0.0)	40 (100)
	1b	72 (86.7)	10 (17.9)	1 (20.0)	83 (100)
	1c	77 (75.5)	24 (23.5)	1 (1.0)	102 (100)
	2	38 (74.5)	12 (23.5)	1 (2.0)	51 (100)
	3	3 (50.0)	3 (50.0)	0 (0.0)	6 (100)
	4	1 (16.7)	3 (50.0)	2 (33.3)	6 (100)
	X**	4 (100)	0 (0.0)	0 (0.0)	4 (100)
	Total	231 (79.1)	56 (19.2)	5 (1.7)	292 (100)
BSM	*	*	*	*	*
BSCtoC	*	*	*	*	*
BSC	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (100)
	1a	7 (87.5)	1 (12.5)	0 (0.0)	8 (100)
	1b	32 (100)	0 (0.0)	0 (0.0)	32 (100)
	1c	55 (98.2)	1 (1.8)	0 (0.0)	56 (100)
	2	13 (100)	0 (50.0)	0 (0.0)	13 (100)
	3	0 (0.0)	0 (0.0)	0 (0.0)	0 (100)
	4	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (100)
	Total	107 (98.2)	2 (1.8)	0 (0.0)	109 (100)
BSS	0	0 (0.0)	1 (100)	0 (0.0)	1 (100)
	1a	0 (0.0)	24 (100)	0 (0.0)	24 (100)
	1b	0 (0.0)	51 (100)	0 (0.0)	51 (100)
	1c	0 (0.0)	89 (100)	0 (0.0)	89 (100)
	2	1 (3.2)	30 (96.8)	0 (0.0)	31 (100)
	3	0 (0.0)	2 (100)	0 (0.0)	2 (100)
	4	0 (0.0)	1 (100)	0 (0.0)	1 (100)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	1 (0.5)	198 (99.5)	0 (0.0)	199 (100)
BSHC	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	1a	0 (0.0)	10 (100)	0 (0.0)	10 (100)
	1b	0 (0.0)	29 (100)	0 (0.0)	29 (100)
	1c	0 (0.0)	28 (100)	0 (0.0)	28 (100)
	2	0 (0.0)	8 (100)	0 (0.0)	8 (100)
	3	0 (0.0)	2 (100)	0 (0.0)	2 (100)
	4	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	0 (0.0)	77 (100)	0 (0.0)	77 (100)
Grand total		359 (50.1)	333 (49.2)	5 (0.7)	677 (100)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

** Primary tumour can not be assessed.

Of the 677 women with invasive breast cancer detected, five had metastatic disease.

The histological grade of the breast cancer detected is shown in Table 3.3.4 for women for whom pT classification was available. Histological grade has been classified using the modified Bloom and Richardson grading system.

Table 3.3.4 Grade of invasive breast cancer by pT classification by lead provider for the period 1.12.98 – 31.3.01.

Lead provider	Classification						
	pT	Grade 0 (%)	Grade 1 (%)	Grade 2 (%)	Grade 3 (%)	No grading (%)	Total (%)
BSAN	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	1a	4 (10.0)	18 (45.0)	15 (37.5)	3 (7.5)	0 (0.0)	40 (100)
	1b	0 (0.0)	37 (44.6)	41 (49.4)	5 (6.0)	0 (0.0)	83 (100)
	1c	0 (0.0)	22 (21.6)	62 (60.8)	18 (17.6)	0 (0.0)	102 (100)
	2	0 (0.0)	8 (15.7)	30 (58.8)	13 (25.5)	0 (0.0)	51 (100)
	3	0 (0.0)	1 (16.7)	4 (66.7)	1 (16.7)	0 (0.0)	6 (100)
	4	1 (16.7)	0 (0.0)	3 (50.0)	1 (16.7)	1 (16.7)	6 (100)
	X**	3 (75.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)	4 (100)
	Total	8 (2.7)	86 (29.5)	155 (53.1)	41 (14.0)	2 (0.7)	292 (100)
BSM	*	*	*	*	*	*	*
BSCtoC	*	*	*	*	*	*	*
BSC	0	0 (0.0)	6 (75.0)	2 (25.0)	0 (0.0)	0 (0.0)	8 (100)
	1a	7 (21.9)	10 (31.2)	12 (37.5)	3 (9.4)	0 (0.0)	32 (100)
	1b	4 (7.1)	21 (37.5)	21 (37.5)	10 (17.9)	0 (0.0)	56 (100)
	1c	4 (30.8)	3 (23.1)	5 (38.5)	1 (7.7)	0 (0.0)	13 (100)
	2	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	3	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	4	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	X**	0 (0.0)	15 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	20 (13.8)	40 (36.7)	40 (36.7)	14 (12.8)	0 (0.0)	109 (100)
BSS	0	1 (100)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100)
	1a	7 (29.2)	11 (45.8)	4 (16.7)	2 (8.3)	0 (0.0)	24 (100)
	1b	2 (3.9)	32 (62.7)	14 (27.5)	3 (5.9)	0 (0.0)	51 (100)
	1c	7 (7.9)	39 (43.8)	31 (34.8)	12 (13.5)	0 (0.0)	89 (100)
	2	3 (9.7)	7 (22.6)	12 (38.7)	9 (29.0)	0 (0.0)	31 (100)
	3	0 (0.0)	2 (100)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100)
	4	0 (0.0)	0 (0.0)	1 (100)	0 (0.0)	0 (0.0)	1 (100)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	20 (10.1)	91 (45.7)	62 (31.2)	26 (13.1)	0 (0.0)	199 (100)
BSHC	0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	1a	1 (10.0)	6 (60.0)	3 (30.0)	0 (0.0)	0 (0.0)	10 (100)
	1b	2 (6.9)	16 (55.2)	9 (31.0)	2 (6.9)	0 (0.0)	29 (100)
	1c	4 (14.3)	11 (39.3)	9 (32.1)	4 (14.3)	0 (0.0)	28 (100)
	2	1 (12.5)	2 (25.0)	3 (37.5)	2 (25.0)	0 (0.0)	8 (100)
	3	0 (0.0)	0 (0.0)	2 (100)	0 (0.0)	0 (0.0)	2 (100)
	4	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	X**	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Total	8 (10.4)	35 (45.5)	26 (33.8)	8 (10.4)	0 (0.0)	77 (100)
Grand total		51 (7.5)	252 (37.2)	283 (41.8)	89 (13.1)	2 (0.3)	677 (100)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

** Primary tumour can not be assessed.

“No grading” is a valid value within the national monitoring data set. The European Guidelines recommend that all histological subtypes of cancers are graded. This requires some commitment and strict adherence to a recommended protocol.²

Of the 677 cancers recorded (Table3.3.4), 291 (43%) were both grade 2 or 3 and less than or equal to 2cm in size. This is a predictor of the future impact of breast screening on breast cancer mortality rates.

3.4 Nodal involvement

Definition – number with invasive breast cancer detected which involve axillary nodes as a percentage of the number with diagnosed invasive cancer.

Indicator - At least 70% of women with invasive breast cancers detected by the programme should be node negative.

For those women with breast cancer for which nodal status was recorded in the national monitoring data set, the percentage that were node negative is shown in Table 3.4.

Table 3.4. Percentage of women with invasive breast cancer who did not have nodal involvement for the period 1.12.98 – 31.3.01.

Lead Provider	Cumulative percentage with no nodal involvement* (number with invasive cancer detected)
BSAN	77.8 (288)
BSM	**
BSCtoC	**
BSC	78.0 (109)
BSS	74.9 (199)
BSHC	80.5 (77)
TOTAL	77.2 (673)

* The one woman with breast cancer who had pT0 cancer has been included. Cancers classified as pNX (regional lymph nodes can not be assessed) have not been included.

** Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

For women with breast cancer details recorded, all lead providers met this indicator. This is an encouraging result, and it is consistent with the desirable level set for screening programmes in the European Union of >70% of cancers being node-negative when detected at initial screening.

3.5 Ductal carcinoma in situ

Definition – number of women with DCIS as a percentage of the number of women diagnosed with cancer.

Indicator 10 – 25% of all cancers detected by the programme.

The number and percentage of women with DCIS detected is shown in Table 3.5.

Table 3.5. Women with ductal carcinoma in situ as a percentage of women detected with cancer by lead provider for the period 1.12.1998 – 31.3.2001.

Lead Provider	Cumulative percentage of ductal carcinoma in situ (number with DCIS detected)
BSAN	27.9 (113)
BSM	*
BSCtoC	*
BSC	15.5 (20)
BSS	21.0 (53)
BSHC	17.2 (16)
TOTAL	23.0 (202)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

All except one of the lead providers met this performance indicator of 10 - 25% of cancers detected being DCIS. This is an encouraging result for BreastScreen Aotearoa. For BreastScreen Auckland and North 27.9% of cancers detected were DCIS. In the latest European Guidelines² the performance indicator is that 10 - 20% of cancers detected should be DCIS.

4. Summary of treatment

The National Screening Unit is developing treatment indicators. Achieving them will be important to minimise mortality from breast cancer, improve the quality of life of patients, minimise anxiety, minimise complications, minimise recurrences and maximise the likelihood of a good cosmetic result after surgery.

Of the 889 women with breast cancer and DCIS detected to 31 March 2001 through the services of the four lead providers with suitable data, 879 had the pT classification of their cancer and DCIS recorded. Of these 879 women, 846 had the last surgical treatment procedure recorded within the national monitoring data set.

4.1 Surgery

The number of women receiving different last surgical treatment procedures, on the breast containing the primary tumour, is shown in Table 4.1.1.

Table 4.1.1 Number of women receiving last surgical treatment procedures on the breast containing the primary tumour by lead provider for the period 1.12.98 – 31.3.01.

Lead provider	Excision biopsy n (%)	Wide local excision n (%)	Sector resection n (%)	Mastectomy n (%)	Other n (%)	Total n (%)
BSAN	2 (0.5)	98 (25.6)	130 (33.9)	149 (38.9)	4 (1.0)	383 (100)
BSM	*	*	*	*	*	*
BSC to C	*	*	*	*	*	*
BSC	3 (2.3)	66 (51.6)	2 (1.6)	56 (43.8)	1 (0.8)	128 (100)
BSS	26 (10.3)	102 (40.5)	11 (4.4)	112 (44.4)	1 (0.4)	251 (100)
BSHC	0 (0.0)	51 (61.4)	1 (1.2)	30 (36.1)	1 (1.2)	83 (100)
TOTAL	31 (3.7)	317 (37.5)	144 (17.0)	347 (41.0)	7 (0.8)	846 (100)

* Data excluded as the tumour size and staging was incompatible for > 10% of tumours recorded.

The treatment options available will be influenced by the stage of cancer detected, and also by each woman's choice. The number of women receiving mastectomy by pT classification is shown in Table 4.1.2.

Table 4.1.2 The number and proportion of women receiving mastectomy by pT classification and lead provider.

pT	BSAN n (%)	BSM n (%)	BSC to C n (%)	BSC n (%)	BSS n (%)	BSHC n (%)	Total n (%)
pT0	0 (0.0)	*	*	0 (0.0)	1 (0.9)	0 (0.0)	1 (0.3)
pT1a	13 (8.7)	*	*	5 (8.9)	8 (7.1)	4 (13.3)	30 (8.6)
pT1b	24 (16.1)	*	*	8 (14.3)	20 (17.9)	10 (33.3)	62 (17.9)
pT1c	34 (22.8)	*	*	22 (39.3)	41 (36.6)	7 (23.3)	104 (29.9)
pT2	38 (25.5)	*	*	10 (17.9)	21 (18.8)	3 (10.0)	72 (20.7)
pT3	5 (3.4)	*	*	0 (0.0)	2 (1.7)	1 (3.3)	8 (2.3)
pT4	3 (2.0)	*	*	0 (0.0)	1 (0.9)	0 (0.0)	4 (1.2)
DCIS	32 (21.5)	*	*	11 (19.6)	18 (16.1)	5 (16.7)	66 (19.0)
Total	149 (100)	*	*	56 (100)	112 (100)	30 (100)	347 (100)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

Overall, from the records of national monitoring data set, 33% of women with DCIS have had mastectomy.

4.2 Axillary dissection

Axillary dissection is usually performed as part of surgical treatment for invasive breast cancer in order to stage the disease and assist in subsequent planning of adjuvant therapy and to reduce the risk of loco-regional recurrence. The following details the levels of axillary dissection procedures:

- Level 1 is up to the lateral border of the pectoralis minor;
- Level 2 is up to the medial border of the pectoralis minor;
- Level 3 is up to the apex of the axilla.

Table 4.2.1 records the details of axillary sampling and dissection for women with invasive breast cancer and DCIS.

Table 4.2.1 Axillary sampling and dissection by pT classification and lead provider for the period 1.12.98 – 31.3.01.

Lead provider	pT	Axillary sampling n (%)	Axillary dissection level 1 n (%)	Axillary dissection level 1 & 2 n (%)	Axillary dissection level 1, 2 & 3 n (%)	No axillary dissection n (%)	Not recorded*** n (%)	Total n (%)
BSAN	0	0	0	0	0	0	0	0
	a	4 (10.0)	0	32 (80.0)	0	2 (5.0)	2 (5.0)	40 (100)
	1b	11 (13.3)	1 (1.2)	68 (81.9)	0	2 (2.4)	1 (1.2)	83 (100)
	1c	5 (4.9)	6 (5.9)	85 (83.3)	5 (4.9)	0	1 (1.0)	102 (100)
	2	1 (2.0)	1 (2.0)	43 (84.3)	4 (7.8)	1 (2.0)	1 (2.0)	51 (100)
	3	0	1 (16.7)	5 (83.3)	0	0	0	6 (100)
	4	0	0	3 (50.0)	1 (16.7)	1 (16.7)	1 (16.7)	6 (100)
	DCIS	8 (7.1)	2 (1.8)	6 (5.3)	0	85 (75.2)	12 (10.6)	113 (100)
	X**	0	0	0	0	0	4 (100)	4 (100)
	Total	29 (7.2)	11 (2.7)	242 (59.8)	10 (2.5)	91 (22.5)	22 (5.4)	405 (100)
BSM		*	*	*	*	*	*	*
BSCtoC		*	*	*	*	*	*	*
BSC	0	0	0	0	0	0	0	0
	1a	2 (25.0)	0	5 (62.5)	0	1 (12.5)	0	8 (100)
	1b	0	4 (12.5)	27 (84.3)	0	0	1 (3.1)	32 (100)
	1c	0	6 (10.7)	49 (87.5)	1 (1.8)	0	0	56 (100)
	2	0	2 (15.3)	10 (77.0)	1 (7.7)	0	0	13 (100)
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	DCIS	3 (15.0)	0	0	0	17 (85.0)	0	20 (100)
	X**	0	0	0	0	0	0	0
	Total	5 (3.9)	12 (9.3)	91 (70.5)	2 (1.6)	18 (14.0)	1 (0.8)	129 (100)
BSS	0	0	0	1 (100)	0	0	0	1 (100)
	1a	5 (20.8)	3 (12.5)	15 (62.5)	0	1 (4.2)	0	24 (100)
	1b	5 (9.8)	3 (5.9)	41 (80.4)	0	2 (3.9)	0	51 (100)
	1c	7 (7.9)	4 (4.5)	73 (82.0)	4 (4.5)	1 (1.1)	0	89 (100)
	2	1 (3.2)	2 (6.5)	27 (87.0)	1 (3.2)	0	0	31 (100)
	3	0	0	1 (50.0)	1 (50.0)	0	0	2 (100)
	4	1 (100)	0	0	0	0	0	1 (100)
	DCIS	7 (13.2)	5 (9.4)	7 (13.2)	0	34 (64.2)	0	53 (100)
	X**	0	0	0	0	0	0	0
	Total	26 (10.3)	17 (6.7)	165 (65.5)	6 (2.4)	38 (15.1)	0	252 (100)
BSHC	0	0	0	0	0	0	0	0
	1a	1 (10.0)	0	6 (60.0)	1 (10.0)	1 (10.0)	1 (10.0)	10 (100)
	1b	0	1 (3.4)	26 (89.7)	0	0	2 (6.9)	29 (100)
	1c	0	0	23 (82.1)	0	0	5 (17.9)	28 (100)
	2	0	0	8 (100)	0	0	0	8 (100)
	3	0	0	1 (50.0)	0	0	1 (50.0)	2 (100)
	4	0	0	0	0	0	0	0
	DCIS	1 (6.2)	3 (18.8)	1 (6.2)	0	10 (62.5)	1 (6.2)	16 (100)
	X**	0	0	0	0	0	0	0
	Total	2 (2.2)	4 (4.3)	65 (69.9)	1 (1.0)	11 (11.8)	10 (10.8)	93 (100)
Grand total		62 (7.0)	44 (5.0)	563 (64.1)	19 (2.2)	158 (18.0)	33 (3.7)	879 (100)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

** Primary tumour can not be assessed.

*** Not recorded in the national monitoring data set

Of the 202 women with DCIS, 146 (72.3%) did not have axillary sampling or dissection performed. The reason why women with DCIS had axillary dissection performed, may be partly explained by the classification by some lead providers of

DCIS with microinvasion as DCIS instead of invasive breast cancer. The desirable level in the European Guidelines for the proportion of women with DCIS where no axillary dissection was carried out is >95%².

It is very important axillary dissection is avoided, where possible, in women with DCIS, because axillary dissection carries the risk of lymphoedema, which can cause significant psychological and physical distress.³ Even in women with invasive cancer, where assessment of nodal status is important for staging, concern about the risk of lymphoedema associated with axillary dissection has spurred the search for alternatives such as sentinel node biopsy.³

Table 4.2.2 records the range of nodes taken by axillary procedure and the average number of nodes taken within each category by lead provider.

Table 4.2.2 The average and the range of the number of nodes taken by axillary sampling and dissection by lead provider for the period 1.12.98 – 31.3.02.

Lead provider		Axillary sampling	Axillary dissection Level 1	Axillary dissection Level 1 & 2	Axillary dissection Level 1, 2 & 3
BSAN	Range	1 - 8	1 - 21	2 - 29	4 - 36
	Average	3.9	9.9	13.7	14.4
BSM	Range	*	*	*	*
	Average	*	*	*	*
BSC to C	Range	*	*	*	*
	Average	*	*	*	*
BSC	Range	1 - 10	5 - 28	2 - 24	12 - 30
	Average	4.6	12.4	11.7	21.0
BSS	Range	1 - 17	1 - 33	1 - 51	3 - 21
	Average	6.3	9.4	14.9	15.0
BSHC	Range	2 - 7	5 - 6	7 - 39	25
	Average	4.5	5.5	15.9	25.0

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

The number of nodes taken and the level of axillary procedures varied considerably between lead providers. Lead providers need to ensure that the level of axillary dissection and the number of nodes sampled is accurately recorded within the national monitoring data set. Some treatment providers may be using sentinel node biopsy, and this would result in fewer nodes sampled than otherwise in some women.

4.3 Breast Reconstruction

Table 4.3 shows the number of women who chose breast reconstruction.

Table 4.3 Breast reconstruction by lead provider for the period 1.12.1998 – 31.3.2001.

Lead provider	Type	Immediate n (%)	Decision delayed n (%)	No reconstruction n (%)	Not stated n (%)	Total n (%)
BSAN	Invasive	18 (6.4)	7 (2.5)	256 (90.8)	1 (0.4)	282 (100)
	DCIS	13 (12.9)	2 (1.9)	85 (84.2)	1 (0.9)	101 (100)
	Total	31 (8.1)	9 (2.3)	341 (89.0)	2 (0.5)	383 (100)
BSM	*	*	*	*	*	*
BSCtoC	*	*	*	*	*	*
BSC	Invasive	3 (2.8)	0 (0.0)	105 (97.2)	0 (0.0)	108 (100)
	DCIS	7 (35.0)	0 (0.0)	13 (65.0)	0 (0.0)	20 (100)
	Total	10 (7.8)	0 (0.0)	118 (92.2)	0 (0.0)	128 (100)
BSS	Invasive	16 (8.0)	0 (0.0)	183 (91.9)	0 (0.0)	199 (100)
	DCIS	3 (5.7)	1 (2.3)	49 (92.5)	0 (0.0)	53 (100)
	Total	19 (7.5)	1 (0.4)	232 (92.1)	0 (0.0)	252 (100)
BSHC	Invasive	3 (4.4)	1 (1.5)	64 (94.1)	0 (0.0)	108 (100)
	DCIS	2 (13.3)	0 (0.0)	13 (86.7)	0 (0.0)	15 (100)
	Total	5 (6.0)	1 (1.2)	77 (92.8)	0 (0.0)	83 (100)
Grand total		65 (7.7)	11 (1.3)	768 (90.8)	2 (0.2)	846 (100)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

Sixty-five women (7.7%) chose immediate breast reconstruction and eleven (1.3%) women delayed their decision about breast reconstruction.

4.4 Radiotherapy

For BreastScreen Auckland and North and BreastScreen HealthCare less than 90% of radiotherapy data for women diagnosed with DCIS and invasive breast cancer was recorded in the national monitoring data set and, therefore, has been excluded from the summary below. Delays in access to radiotherapy may partly explain delays in collecting data about radiotherapy. Of the 379 women for whom radiotherapy details are recorded (BreastScreen Central and BreastScreen South), 208 women were offered radiotherapy and all accepted the offer. The following forms of treatment were recorded in the national monitoring data set:

- 44 (21.2%) women had breast/chest radiation only;
- 144 (69.2%) women had breast/chest radiation and a radiation boost;
- 11 (5.3%) women had breast/chest radiation and radiation to the regional nodes;
- 9 (4.3%) women had breast/chest and regional nodes radiation and a regional boost, and no woman had radiation to regional nodes only.

4.5 Endocrine manipulation

Table 4.5 shows the number of women who underwent endocrine manipulation therapy.

Table 4.5 Endocrine manipulation by lead provider for the period 1.12.1998 – 31.3.2001.

Lead provider	SERM ** n (%)	Chemical oophor- ectomy n (%)	Progest- ogen n (%)	Aromatase inhibitor n (%)	Other*** n (%)	None n (%)	Unknown n (%)	Total n (%)
BSAN	127 (32.9)	0 (0.0)	0 (0.0)	1 (0.3)	0 (0.0)	249 (64.5)	9 (2.3)	386 (100)
BSM	*	*	*	*	*	*	*	*
BSC to C	*	*	*	*	*	*	*	*
BSC	72 (55.8)	1 (0.8)	1 (0.8)	0 (0.0)	0 (0.0)	55 (42.6)	0 (0.0)	129 (100)
BSS	118 (46.8)	0 (0.0)	0 (0.0)	1 (0.4)	1 (0.4)	132 (52.4)	0 (0.0)	252 (100)
BSHC	33 (42.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	45 (57.7)	0 (0.0)	78 (100)
Total	350 (41.4)	1 (0.1)	1 (0.1)	2 (0.2)	1 (0.1)	481 (56.9)	9 (1.1)	845 (100)

* Data excluded as the tumour size and pT classification were incompatible for > 10% of tumours recorded.

** Selective estrogen receptor modulator, for example, tamoxifen.

*** Other – type unspecified.

Forty one percent of women had selective estrogen receptor modulation therapy and 56.9% (481) did not receive endocrine manipulation.

4.6 Chemotherapy

Of the 381 women with information about chemotherapy recorded, 330 (86.6%) were not offered chemotherapy. The national monitoring data set records that for BreastScreen Auckland and North and BreastScreen HealthCare less than 90% of chemotherapy data for women diagnosed with DCIS and invasive breast cancer was available and, therefore, has been excluded from the analysis. Of the 51 women offered chemotherapy, 43 (84.3%) women accepted.

5. Provision of an appropriate and acceptable service

5.1 Time taken providing results of screening.

Definition - Date of providing results to women minus date of final screening visit.

Indicator - 95% notified within 10 working days.

From the national monitoring data set, the time taken to provide the results of screening to women for each lead provider is shown in Table 5.1.

Table 5.1. Time taken to provide results of screening to women for each lead provider.

Lead Provider	Quarterly % Notified within 10 working days* (number of women)	Cumulative % notified within 10 working days Round Two* (number of women)
BSAN	97.7 (7,211)	97.9 (26,396)
BSM	97.5 (2,803)	98.1 (13,734)
BSCtoC	98.4 (3,030)	98.6 (12,640)
BSC	99.0 (2,647)	99.2 (10,356)
BSS	98.1 (3,924)	99.1 (20,086)
BSHC	97.0 (1,636)	93.8 (7,526)
TOTAL	97.9 (21,251)	98.1 (90,738)

* A five-day working week is used to calculate this indicator.

In this quarter BreastScreen HealthCare continued to increase the percentage of women receiving timely screening results. It is encouraging that all lead providers achieved the quarterly target and 97.9% of women screened received their results within ten days.

5.2 Time taken from screening visit to first offer of an assessment appointment.

Definition - Date of first available appointment offered for assessment minus date of final screening visit.

Indicator – At least 90% of women offered an assessment appointment within 14 working days of their final screening mammogram.

The time taken from screening visit to first offer of an assessment appointment is shown in Table 5.2.

Table 5.2. Time taken from screening visit to first offer of an assessment appointment for the women screened by each lead provider.

Lead Provider	Quarterly % offered assessment within 14 working days* (number of women)	Cumulative % offered assessment within 14 working days Round Two* (number of women)
BSAN	68.8 (348)	83.4 (1,433)
BSM	81.6 (115)	86.5 (517)
BSCtoC	63.6 (77)	78.1 (431)
BSC	93.2 (137)	93.9 (572)
BSS	85.1 (205)	93.2 (1,253)
BSHC	73.5 (25)	67.7 (224)
Total	76.2 (907)	86.0 (4,430)

* A five-day working week is used to calculate this indicator.

BreastScreen Central was the only lead provider to have achieved this timeliness indicator during the quarter. Thus far, they and BreastScreen South have achieved the indicator of performance overall for Round Two. It is important that an appointment for assessment is offered as soon as possible after screening for women who require assessment.

5.3 Time taken from assessment to final diagnostic biopsy.

Definition

- Date of needle biopsy minus date of first level assessment.
- Date first offered for open surgical biopsy minus date of first level assessment.

Indicator

- At least 90% of women requiring needle biopsy procedure have that procedure completed within 7 days of their assessment.
- At least 90% of women requiring open biopsy procedure are offered that procedure within 3 weeks of their assessment.

The timeliness of completing needle biopsies and offering appointments for open surgical biopsies is shown in Table 5.3.

Table 5.3. Percentage and numbers of women (n) receiving biopsy within 7 days of the date of first level of assessment for needle biopsy and 3 weeks for open surgical biopsy.

Lead Provider	Quarterly		Cumulative Round Two	
	Percentage for which needle biopsy completed within 7 days of assessment (n)	Percentage for which open biopsy offered within 3 weeks of assessment (n)	Percentage for which needle biopsy completed within 7 days of assessment (n)	Percentage for which open biopsy offered within 3 weeks of assessment (n)
BSAN	94.6 (105)	58.8 (10)	85.8 (368)	45.0 (36)
BSM	73.5 (25)	0.0 (0)	81.3 (139)	33.3 (6)
BSCtoC	94.9 (37)	*	94.5 (155)	46.7 (7)
BSC	100.0 (42)	66.7 (8)	95.2 (177)	63.9 (23)
BSS	76.1 (70)	100.0 (1)	83.3 (435)	63.3 (19)
BSHC	86.7 (13)	100.0 (8)	92.0 (69)	81.0 (17)
Total	87.7 (292)	66.7 (27)	86.8 (1,343)	54.0 (108)

* No open biopsies recorded for the quarter.

The ability to offer timely needle biopsy procedures has declined below the target during the quarter for BreastScreen Midland, BreastScreen South and BreastScreen HealthCare. The provision of timely open biopsy procedures continues to be an issue for BreastScreen Auckland and North and BreastScreen Midland. As recommended in Monitoring Report no. 10 (Recommendation 6) this should be investigated by lead providers and the NSU and remedied.

5.4 Time taken from final diagnostic biopsy to reporting assessment results.

Definition - Date of reporting final biopsy results to woman minus date of final diagnostic biopsy.

Indicator - Results reported to at least 90% of women within 7 days of final diagnostic biopsy.

For all lead providers, the percentage of women receiving results within 7 days of their final diagnostic biopsy is shown in Table 5.4.

Table 5.4. Time taken from final diagnostic biopsy to reporting assessment results for women of each lead provider.

Lead Provider	Quarterly % results within 7 days (number of women)	Cumulative % results within 7 days Round 2 (number of women)
BSAN	90.7 (147)	84.2 (524)
BSM	71.4 (25)	79.4 (139)
BSCtoC	89.7 (35)	90.8 (157)
BSC	78.6 (33)	83.2 (159)
BSS	98.9 (91)	95.4 (499)
BSHC	88.9 (16)	86.6 (71)
Total	89.4 (347)	87.7 (1,549)

It is important for the results of final biopsies to be reported as early as possible because women who have had biopsies are likely to be very anxious while awaiting the results. BreastScreen Midland was less able to report assessment results in a timely manner this quarter (71.4%) compared with the previous quarter (89.3%). With this exception most women are receiving their assessment results in a timely fashion after their final diagnostic biopsy.

5.5 Time taken from reporting assessment results to first date offered for primary treatment.

Definition - Date first offered primary treatment minus date of reporting final biopsy results to woman.

Indicator – At least 90% of women offered primary treatment within 3 weeks of the final diagnosis being reported to the woman.

Table 5.5 shows the time from reporting assessment results to the first date women were offered primary treatment.

Table 5.5. Time from reporting assessment results to first date offered primary treatment for women of each lead provider.

Lead Provider	Cumulative % women offered primary treatment within 3 weeks 1.12.1998 – 31.3.2001 (n)
BSAN	57.4 (220)
BSM	*
BSCtoC	*
BSC	81.5 (106)
BSS	67.9 (171)
BSHC	83.3 (70)
Total	66.8 (567)

* Data excluded as the tumour size and staging was incompatible for > 10% of tumours recorded.

None of the lead providers for whom data was reported was able to attain performance consistent with this indicator. It is important to note that the first date offered for treatment may be out of the control of lead providers, and will be determined by DHBs, and private treatment providers. However, it is the responsibility of lead providers to ensure the timely transfer of information that will allow the treatment provider to proceed with the offer of treatment.

References

1. Wilson JMG, Jungner G. Principles and Practice of Screening for Disease. WHO Public Health Papers 1968; No. 34.
2. European Commission (2001). *European guidelines for quality assurance in mammography screening*. (3rd ed.) N Perry et al (Eds.) Luxemburg: European Communities.
3. Cohen SR, Payne DK, Tunkel RS. Lymphedema: strategies for management. *Cancer* 2001; 92: 980-7.

Appendix A

The BreastScreen Aotearoa Independent Monitoring Group (BSAIMG) provides information routinely to the Ministry of Health (MOH) and lead providers in the form of quarterly and annual reports. Reports include information about the key parameters of BreastScreen Aotearoa, as outlined below. Each report also will make comment on any problems with data collection, the consistency and interpretation of the data, and will make recommendations for improving collection processes.

The reports will assess the data of BreastScreen Aotearoa, and of individual providers, with respect to the National Monitoring Indicator Set (NMIS). The reports will also indicate when revision of the NMIS is required, and the MOH will be informed of these new requirements, together with a justification for any change to the NMIS.

National averages will be stated within each individual lead provider report to enable performance comparisons. Recommendations to lead providers and the MOH will also be included when action is required to improve or maintain the performance of BreastScreen Aotearoa.

Information to be included routinely in quarterly reports is identified with an asterisk. Other information will be provided six-monthly or annually but some results cannot be provided until the end of a screening round. The BSAIMG will also report on other issues of importance as and when they arise.

A2.0 KEY PARAMETERS

These parameters relate to the screening pathway, from registration of eligible women, screening, and assessment, to diagnosis and treatment. Within each stage of the screening pathway certain parameters will be measured. These parameters have been chosen because they can be used as indicators of the acceptability, effectiveness, and efficiency of BSA.

A2.1 IDENTIFICATION AND INVITATION

Identification and invitation of eligible women are essential components of a national breast cancer screening programme. Irrespective of the quality of the other aspects of the programme, a programme that fails to identify and invite a high proportion of the eligible population will also fail to have the desired impact on breast cancer morbidity and mortality. Current identification and invitation processes do not allow the BSAIMG to accurately assess these aspects of the national programme.

A2.1.1 Registration rate *

This rate will be measured by dividing the number of registered women (from provider records) as a percentage of the number of eligible women according to projected population numbers. Registration rates, with 95% confidence intervals, will be calculated for each provider area, and for the whole country, by age group. The target registration rate is 85% by the end of the prevalence round, and the performance of BSA against this target will be reported after the end of the prevalence screening round.

A2.1.2 Coverage rate *

Coverage will be measured by dividing the number of women screened (from provider records) by the number of eligible women according to projected population numbers. Coverage rates will be calculated for each provider area, and for the whole country (if data is available from Health Benefits Ltd for private sector screening of women), by age group. Coverage rates for BSA and for the private sector will also be calculated separately. The target is >70% of women aged 50-64 years in BSA. The performance of BSA with respect to this target will be measured at the end of the prevalence screening round.

A2.2 SCREENING TEST

The validity of the screening test will be examined by calculating its sensitivity and specificity. The screening test is the point of entry for a woman with breast cancer. If her cancer is missed, she cannot benefit from early detection. Because the test is not perfect, some women will have false positive or false negative tests. These should be kept to a minimum in order to avoid unnecessary anxiety and investigations, or false reassurance.

A2.2.1 Radiation dose/Optical density

The mean absorbed dose to glandular tissue (MGD) for a test object (routinely collected as part of equipment calibration and maintenance) will be obtained from provider records and reported in each annual report. Optical density, a measure of film density and mammographic quality will be obtained from provider records and reported in each annual report.

A2.2.2 Number of films taken *

The number of films taken for each woman screened will be obtained from provider records. This will be compared against the target of a minimum of 80% of women having 4 or fewer films. Numbers of films per woman will be calculated by provider, and for mobile versus fixed screening centres.

A2.2.3 Technical recall rate *

The number of women recalled for extra films for technical reasons (from provider records) will be divided by the number of women screened (from provider records). Technical recall rates will be calculated according to screening round, by provider, and for mobile versus fixed screening centres. Targets are <3% for mobile units and <0.5% for fixed units.

A2.2.4 Technical repeat rate *

The number of technical repeat films will be divided by the total number of films taken (from provider records). Technical repeat rates will be calculated according to screening round, by provider, and for mobile versus fixed screening centres. The target is <3%.

A2.2.5 Sensitivity (estimate)

Sensitivity will be estimated by dividing the number of women with screen-detected breast cancer by the sum of this number and the number of women with interval cancers in the year following a negative screen. The target is 90%. Sensitivity will be estimated for each screening round by age group and by region and provider.

A2.2.6 Specificity (actual)

Specificity will be calculated after a complete screening round, by dividing the number of women with true negative screening tests by the sum of this number and the number of women with false positive tests. In order to measure the number of women with true negative tests, it will be important to measure the number of women with false negative tests (interval cancers). This information will have to be obtained from provider records (negative tests) and also from the Cancer Registry of the NZHIS (women diagnosed with interval cancers following a negative test). Specificity will be calculated by age group and by region and provider. The target is >93%.

A2.2.7 Specificity (approximate)*

Specificity can be estimated before the second screening round by dividing all negative tests (including false negatives) by the sum of all negatives and false positives. This is an adequate estimate of specificity (although false negatives have been included in the numerator and the denominator) because the number of false negatives is very small in relation to the number of true negatives. This information will be obtained from provider records. Specificity will be estimated by age group and by provider. The target is >93%.

A2.2.8 Positive predictive value (PPV)

The number of women with breast cancer diagnosed through the screening programme will be divided by the sum of this number and the number of women with false positive screening tests (i.e.: the number of women with screen-detected cancer as a percentage of all women referred for assessment). This information will be obtained from provider records. The positive predictive value will be calculated by screening round, by age group, and by region and provider, and will be reported in each annual report. The target PPV is $\geq 9\%$.

A2.3 ASSESSMENT

Women with positive screening tests will be referred for assessment. The number referred will be determined by the underlying prevalence of breast cancer in the population and by the sensitivity and specificity of the screening test. Ideally the assessment process will determine which women with positive screening tests actually have breast cancer and require treatment, while minimising unnecessary anxiety and investigations in the other women.

A2.3.1 Assessment rate *

The assessment rate will be calculated by dividing the number of women referred for assessment by the total number of women screened. Assessment rates will be calculated by screening round, by age group, and by provider. Targets for the prevalence screening round are <7% (expected) and <10% (minimum). Targets for the incidence screening rounds are <4% (expected) and <5% (minimum). These targets will not be measured until after the end of each screening round.

A2.3.2 False positive rate of mammograms *

The false positive rate will be calculated by dividing the number of women with false positive screening results (women referred for assessment but who do not have breast cancer diagnosed as a result) divided by the total number of women screened. This information will be obtained from provider records. The false positive rate will be calculated by age group, and by provider. Targets for the prevalence screening round are <6% (expected) and <9% (minimum). Targets for the incidence screening rounds are <3% (expected) and <4% (minimum). These targets will not be measured until after the end of each screening round

A2.3.3 Needle biopsy rate *

The needle biopsy rate will be calculated by dividing the number of women undergoing FNA divided by the number of women screened. This information will be obtained from provider records. The needle biopsy rate will be calculated by age group, and by provider. No target has been set for the needle biopsy rate.

A2.3.4 Benign biopsy weight

The weight of benign biopsy is measured to ensure 80% weigh less than 20g. The rate is calculated by the number of benign biopsies, which weigh less than 20g as a percentage of the number of benign open biopsies.

A2.3.5 Open surgical biopsy rate *

The open surgical biopsy rate will be calculated by dividing the number of women undergoing open surgical biopsy divided by the number of women screened. This information will be obtained from provider records. The open surgical biopsy rate will be calculated by age group, and by provider. The target for the open surgical biopsy rate is 1% or less.

A2.3.6 Benign biopsy rate *

The benign biopsy rate will be calculated by dividing the number of women with benign open surgical biopsy divided by the number of women screened. This information will be obtained from provider records. The benign biopsy rate will be calculated by age group, and by provider. The targets are <10 per 1,000 women screened in the prevalence round and <5 per 1,000 women screened in the incidence rounds. The performance of BSA with respect to these targets will be summarised in the annual reports.

A2.4 DIAGNOSIS

The number of women diagnosed with breast cancer as a result of BSA will be partly determined by the underlying prevalence of breast cancer in the eligible population, but also by the quality of the screening and assessment procedures. After diagnosis, the size and node status of cancers detected can be used as an indicator of the effectiveness of BSA.

A2.4.1 Pre-operative diagnosis rate

This will be calculated by dividing the number of women whose breast cancers were diagnosed by needle biopsy by the total number of women with breast cancer diagnosed through the screening programme. This information will be obtained from provider records. The target is $\geq 70\%$. The pre-operative diagnosis rate will be calculated by age group, and by region and provider, and will be reported annually.

A2.4.2 Cancer detection rate *

The cancer detection rate will be calculated by dividing the number of women with breast cancer diagnosed through the screening programme by the number of women screened. This information will be obtained from provider records. The cancer detection rate and 95% confidence interval will be calculated by age group, and by region and provider. The targets are ≥ 6 per 1,000 women screened in the prevalence round and ≥ 3 per 1,000 women screened in the incidence rounds. The performance of the programme with respect to these targets will be reported in the annual reports.

In the prevalent round the cancer detection rate is expected to be at least three times the expected breast cancer incidence rate in the absence of screening. In the incident round it is expected to be at least 1.5 times the expected breast cancer incidence rate in the absence of screening. The expected incidence rate in the absence of screening will be estimated based on historical data from the Cancer Registry, taking into account relevant demographic trends.

A2.4.3 Invasive cancer rate

This will be calculated by dividing the number of women with invasive breast cancer detected through the screening programme by the number of women screened. This information will be obtained from provider records. The invasive cancer rate and 95% confidence interval will be calculated by age group, and by region and provider, and reported six-monthly. The target is 4.8 per 1,000 women screened.

A2.4.4 Small invasive cancer detection rate

As above, but for cancers ≤ 10 mm. The target is 1.2 per 1,000 women screened per incident round.

A2.4.5 Proportion of women diagnosed with nodal involvement

The proportion of women with nodal involvement will be calculated by dividing the number of women with breast cancer involving axillary nodes diagnosed through the screening programme by the total number of women diagnosed with breast cancer diagnosed through the screening programme. This information will be obtained from provider records. The proportion will be calculated by age group, and by region and provider, and will be reported six-monthly. The target is that at least 70% of women with cancers detected by BSA should be node negative (i.e. less than 30% node positive).

A2.4.6 Proportion of DCIS

As above, but for DCIS. The target is that 10-25% of all cancers detected by BSA should be DCIS.

A2.4.7 Interval cancer rate

The interval cancer rate will be calculated by dividing the number of women with breast cancer detected within 12 months of a negative screen by the total number of women with negative screening tests during that screening round. This information will be obtained from the providers and from the Cancer Registry. The interval cancer rate, and 95% confidence interval, will be calculated by screening round and by region, and reported annually. The targets are <0.6 per 1,000 women screened within 1 calendar year of a negative screen, and <1.2 per 1,000 women screened between the 1st and 2nd year of a negative screen.

A2.4.8 Proportion of women with cancers detected by the programme

The proportion of women with cancers detected by the programme will be calculated by dividing the number of women with breast cancer diagnosed through the programme by the total number of women in the eligible age-range diagnosed with breast cancer in a given period. This information will be obtained from the providers and from the Cancer Registry. The proportion will be calculated by screening round, by age, and by region, and reported annually.

A2.5 TIMELINESS

The following relate to the requirement for the programme to ensure prompt and appropriate treatment for women who take part in the National Breast Cancer Screening Programme. The information will be collected from the providers, and where appropriate, from NZHIS. The dates of screening, providing results of screening, assessment, providing assessment results, date of biopsy, providing biopsy result, date of final diagnostic biopsy, result of final biopsy, and date first offered for primary treatment will be collected. The time taken for the following indicators will be calculated according to screening round and by region. The indicators will be reported quarterly.

A2.5.1 Time to recall after a negative screen

Eligible women should be offered mammograms at two-yearly intervals. The percentage of eligible women recalled within 24 months of their previous screen will be measured.

A2.5.2 Time taken to provide results of screening *

The target is for 95% of women to be notified within 10 working days of the screening examination.

A2.5.3 Time taken from screening visit to first assessment appointment *

The target is for 90% of women to be offered their assessment appointment within 14 working days of their final mammogram.

A2.5.4 Time taken from final assessment to final diagnostic biopsy *

The target is for 90% of women requiring needle biopsy to have that procedure completed within 7 days of their assessment, and for 90% of women requiring open surgical biopsy to be offered that procedure within 3 weeks of their assessment.

A2.5.5 Time taken from final diagnostic biopsy to reporting assessment results *

The target is that 90% of women should have received their results within 7 days of their final diagnostic biopsy.

A2.5.6 Time taken from reporting assessment results to first date offered for primary treatment*

The target is that 90% of women are offered primary treatment within 3 weeks of the final diagnosis being reported to them.

A3.0 QUARTERLY REPORT PROCESS

- A3.1** BSAIMG receives cleaned data in agreed format from NZHIS within one month of quarter end.
- A3.2** BSAIMG drafts quarterly report as agreed proforma within two months of quarter end.
- A3.3** BSAIMG discusses the draft with lead providers (own report) before it is finalised. Subsequently it was decided by the National Screening Unit (NSU) that communication between lead providers and BSAIMG would occur via the NSU. Lead providers send feedback about quarterly reports to the NSU and the feedback is collated and NSU feedback added, as in A3.4 below.
- A3.4** MOH and lead providers' review draft reports and feed back (via the NSU) within one month of receiving reports.
- A3.5** BSAIMG assesses feedback and finalises its report.
- A3.6** BSAIMG electronically transfers final quarterly report to the MOH within two weeks of receiving feedback. If a serious issue becomes apparent it will be discussed with the MOH prior to this transfer.
- A3.7** MOH circulates reports to each lead provider (own report).
- A3.8** BSAIMG forwards a copy of the report directly to the MOH Screening Advisory Group chair.

A4.0 DATA

- A4.1** Lead providers have responsibility to collect data in such a way as to ensure that an accurate timely and consistent set of health data is available for comparative purposes (Chapter 1, DMM p1.5).
- A4.2** Lead providers have responsibility to adhere to the minimum standards for the collection and management of data as set out in Chapter 2, Minimum Standards, BreastScreen Aotearoa, and DMM.
- A4.3** The funder, lead providers, and BSAIMG are to adhere to the guiding principles of data collection and management described in the document “NZHIS Guide to Data Requirements”.
- A4.4** BSAIMG will utilise the same title, definition, numbering and lettering for indicators as outlined in the DMM.
- A4.5** All quantitative information will be provided directly to BSAIMG by NZHIS as agent for the NSU.
- A4.6** BSAIMG will utilise projected population figures for calculation of the registration rate and population coverage.
- A4.7** Quarterly and annual reports will include women screened and assessed in that quarter who have a screening and final diagnosis recorded. Reports may include details of a previous screening quarter’s assessment data – if this occurs it will state which screening quarter the assessment data relates to.
- A4.8** Round reports will include all women screened and assessed in a defined 24-month period.

Appendix B

Population Projections BreastScreen Aotearoa (2001/2002)

Population denominator data

The eligible populations in these reports have been calculated from projected resident populations in each lead provider district, provided by Statistics New Zealand. The projections are based on the New Zealand Census 1996, assuming medium fertility, medium mortality, medium inter-ethnic mobility and medium migration. The populations have been calculated as the mean of the projected populations for the years 2001 and 2002.

Table 1. Population projections BreastScreen Aotearoa (2001/2002).

Population Projections BreastScreen Aotearoa (2001/2002)	
BreastScreen Auckland & North	104,002
BreastScreen Midland	48,051
BreastScreen Coast to Coast	40,792
BreastScreen Central	32,664
BreastScreen South	54,074
BreastScreen HealthCare	22,215
TOTAL	301,798
70% coverage over two years	211,259

Table 2. Population projections (2001/2002) by age group.

Population Projections (2001/2002) - Summary by age group				
	50-54	55-59	60-64	Total
BreastScreen Auckland & North	42,824	34,287	26,891	104,002
BreastScreen Midland	18,629	15,692	13,730	48,051
BreastScreen Coast to Coast	16,181	13,146	11,465	40,792
BreastScreen Central	13,430	10,675	8,559	32,664
BreastScreen South	21,878	17,432	14,764	54,074
BreastScreen HealthCare	8,983	7,015	6,217	22,215
Total	121,925	98,247	81,626	301,798

Ethnic group denominators

The denominators for each ethnic group are also taken from the census and calculated from projected resident populations in each lead provider district, provided by Statistics New Zealand. Statistics New Zealand utilise a confidentiality assurance technique of randomly rounding census statistics to base three. This enables the greatest amount of census data to be released without compromising the privacy of individual responses. As a consequence the ethnicity denominator in Table 3 differs from the overall coverage denominator in Table 1.

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 by the New Zealand Health Information Service (NZHIS). Thus, if a woman chooses more than one category and one of these is Maori, she is counted as Maori.

Table 3. Population projections (2001/2002) by ethnicity.

Population Projections (2001/2002) - Summary by ethnicity				
	Maori	Pacific	Other	Total
BreastScreen Auckland & North	8,860	6,655	89,485	10,5000
BreastScreen Midland	7,060	483	40,875	48,418
BreastScreen Coast to Coast	5,220	338	35,095	40,653
BreastScreen Central	2,330	1,498	29,225	33,053
BreastScreen South	2,110	365	51,645	54,120
BreastScreen HealthCare	950	113	21,265	22,328
Total	26,530	9,452	267,590	303,572

The priority for multiple ethnic group reporting is shown below:

Table 4 Multiple ethnic group reporting priority list.

Ethnic group	Priority for multiple ethnic group reporting
European not further defined	20
NZ European / Pakeha	21
Other European	19
Maori	1
Pacific Island not further defined	9
Samoan	7
Cook Island Maori	6
Tongan	5
Niuean	4
Toleauan	2
Fijian	3
Other Pacific	8
Asian not further defined	14
South East Asian	10
Chinese	12
Indian	11
Other Asian	13
Middle Eastern	17
Latin American / Hispanic	15
African	16
Other	18
Not stated	99

Source: New Zealand Health Information Service. Data Dictionary Appendix Revision 4.3. Wellington: NZHIS, 1997.

Appendix C

Quality assurance includes:

- routine review of coverage, including coverage by ethnic group, and assessment of recruitment and invitation methods. Coverage that is consistently below the expected level (>70% over a two year screening round, or >8.75% per quarter) should trigger a review of recruitment and invitation strategies, and the implementation of new methods to improve coverage.
- routine review of management processes, including the processes for recording results, notifying women, and recalling women for assessment and for routine rescreening. This review should include a review of the timeliness indicators (section 5 of this report), to ensure that women are receiving accurate results, and appointments for assessment and investigations in a timely fashion.
- routine review of films taken by MRTs (including technical recall and repeat rates), and investigating the reasons for technical repeats and recalls. This is especially important for MRTs working in mobile units because with batch processing, they may not see the developed films until some time after they have taken the mammograms.
- routine review of film reading by radiologists (this will include assessment of the double-reading process, including assessment of inter- and intra-rater reliability, review of true positive and false positive films for women who have been referred to assessment, and review of the films of all women diagnosed with interval cancers).
- routine review of FNA, core needle, and biopsy results for pathologists (once the final diagnosis is known).
- routine review of the assessment process for the multidisciplinary assessment team (MRTs, breast care nurse, radiologists, surgeons, pathologists). This will include a review of the assessment results for all women diagnosed with interval cancers following a positive screen result but negative assessment result, and a review of the assessment process for all women on extended assessment.