

**BreastScreen Aotearoa**  
**MONITORING REPORT No. 8**

**Women screened**  
**between 1 January and 31 March 2001**

**BreastScreen Aotearoa Independent Monitoring Group**  
**Report to the Ministry of Health**

**17 September 2001**

Technical Report No. 35  
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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 were specified by the Health Funding Authority (now 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 May 28, 2001. The draft report was written in June 2001 and was sent to the Ministry of Health on 16 July, 2001 for comment. Feedback from lead providers and the Ministry of Health was received in late August and discussed at the monitoring group meeting on August 31, 2001. Some amendments were made to the draft report prior to submission to the Ministry of Health on September 17, 2001.

### **DISCLAIMER**

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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## Executive Summary

This quarterly report relates to women screened during 1 January to 31 March 2001, and also includes data on any assessment and investigations carried out for these women following their screening mammograms. Some women will have received their first screens during this period, while many other women will have received their second or subsequent screens, since it is now more than two years since the start of BreastScreen Aotearoa. When a population is screened for the first time this is called prevalence screening. Second and subsequent screening is called incidence screening. Until now, all lead providers (except BreastScreen HealthCare and BreastScreen Midland, which included the regions covered by the pilot programmes in which many women had been screened previously) had been performing prevalence screening.

The breast cancer detection rate is usually lower in incidence screening than prevalence screening because in general, any breast cancers detected have only had two years (since the last screen) to arise. As a result of this, assessment rates are usually also lower in incidence screening. False positive rates are lower (and specificity higher) because radiologists have previous films to use as a baseline when interpreting incidence screening films.

Separate indicators were developed for prevalence and incidence screening in BreastScreen Aotearoa for the assessment rate, the false positive rate, and the cancer detection rate. These are reported for the first time in this quarterly report. Comparisons between this report and previous reports should take into account the transition for most lead providers from prevalence screening to now providing mostly incidence screening. Thus, the assessment rates, false positive rates, and cancer detection rates in BreastScreen Aotearoa can be expected to be lower from now on compared with the first two years of screening. But the difference between prevalence and incidence screening within this report and within subsequent reports will be less marked, because prevalence screening will occur mostly among women who have just become eligible for screening at the age of 50 years. Thus, the women receiving prevalence screens will be younger (and therefore at lower risk of breast cancer) than the women receiving incidence screens.

All lead providers can be congratulated on meeting the indicators for incidence screening for assessment, specificity, false positive rate, and cancer detection rate in this quarter. Most lead providers have also improved the timeliness of sending women their results and providing assessment and treatment appointments in this quarter.

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, nodal involvement, and histological grade of tumours detected, and the absolute rate of advanced cancers detected in BreastScreen Aotearoa. At present, the national monitoring data set cannot be used to assess the effectiveness of the programme since information on cancer stage, nodal status and the presence of distant metastatic disease is available for only 46.8% of the 1095 women recorded with a diagnosis of DCIS or invasive breast cancer from the commencement of BreastScreen Aotearoa to the 31 December 2000. Interpretation of the information on stage distribution, histological grade, or size of tumours detected will be difficult until complete information for a chronological period is available.

In this quarter there were 146 women with more than one NHI entry in the enrolment detail table sent to BSAIMG. The National Screening Unit identified on the transfer list provided with the data set that 97 women had transferred from one lead provider to another (hence

these women were registered with two lead providers). The NSU commenced recording women who transferred during 2000 so it would appear that some women who transferred prior to this may not be on the transfer list.

Since the start of BreastScreen Aotearoa, 269 women are recorded as having transferred from one lead provider to another. None of these women is recorded as being diagnosed with breast cancer. At present, women with more than one entry in the enrolment detail table are deleted from the data presented in these reports because BSAIMG has no way to determine which entry is related to the screening entry in other tables. BSAIMG considers that this issue of women transferring could be easier to deal with if a date of registration with a particular lead provider was recorded and attached to a screening episode and if BreastScreen Aotearoa had an information system which enabled easier sharing of information between lead providers.

The lack of a population register for BreastScreen Aotearoa means that registration and participation rates cannot be calculated appropriately, and that estimates of coverage are imprecise (Section 1.1, page 1 and section 1.3, page 3). Recommendations on cancer screening for Europe addressing the importance of population registers and information systems in cancer screening programmes have recently been promulgated. They state the following:

“The findings from trials can be extrapolated to the general population only if the conditions in the trials can be reproduced in the routine healthcare system. This requires an organisation with a call-recall system and with quality assurance at all levels, and it requires an effective and appropriate treatment service. Centralised data systems are needed for the running of organised screening programmes. This includes a computerised list of all persons to be targeted by the screening programme. It includes also computerised data on all screening tests, assessment and final diagnoses. Organised screening also implies scientific analysis of the outcome of the screening and quick reporting of these results to the population and screen providers. This analysis is facilitated if the screening database is linked to cancer register data.

High quality screening is possible only if the personnel at all levels are adequately trained for their tasks. Performance indicators should be monitored regularly.

Ethical, legal, social, medical, organisational and economic aspects have to be considered before decisions can be made on the implementation of cancer screening. Resources, human as well as economic, must be available in order to ensure the appropriate organisation and quality control. Actions have to be taken to ensure different socio-economic groups equal access to screening. The implementation of a cancer screening programme is therefore a decision to be made locally, depending on the disease burden and the health care resources.”

Source: Advisory Committee on Cancer Prevention. Position paper: Recommendations on cancer screening in the European Union. *European Journal of Cancer* 2000; 36: 1473-8.

## **Recommendations:**

1. BSAIMG recommends that registration rates as currently reported should cease. This is because, in the absence of a population register, registration rates as presently calculated do not allow monitoring of the invitation process.
2. Each lead provider should have access to a complete list of the women aged 50-64 in the region for the invitation of women to the programme. The Ministry of Health should continue to investigate the availability of an accurate population register.
3. The reasons for the low referral rate to assessment by BreastScreen Midland should be investigated.
4. Some women with a final outcome of DCIS and or invasive cancer did not have an entry for second and third level assessment or clinical assessment at first level assessment recorded. The Ministry of Health should investigate assessment results for women with DCIS and invasive breast cancer to ensure that data entry is complete, accurate and appropriate.
5. Routine quality assurance and review of films at BreastScreen HealthCare should be used to investigate the high assessment and false positive rates for prevalence screens.
6. The lack of complete information about the cancers detected within BreastScreen Aotearoa needs to be addressed as a priority by the Ministry of Health.
7. BSAIMG recommends that BreastScreen Aotearoa considers ways to increase the sharing of data for women who transfer between lead providers and adopts an information system which supports this requirement.
8. BSAIMG recommends that work should continue with BreastScreen HealthCare to achieve appropriate timeliness of reporting screening results to women.

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

| Indicator   | LEAD PROVIDERS |     |        |     |     |      |     |
|---|----------------|-----|--------|-----|-----|------|-----|
|   | BSAN           | BSM | BSCtoC | BSC | BSS | BSHC | BSA |
| <b>Coverage (%) for 1 January to 31 March 2001</b>  |                |     |        |     |     |      |     |
| <i>- Indicator &gt; 70% (&gt;8.75% per quarter)</i>                                       |                |     |        |     |     |      |     |
| <b>Overall</b>  | 4.6            | 6.3 | 5.0    | 6.9 | 9.0 | 9.5  | 6.3 |
| <b>Maori</b>  | 3.2            | 3.1 | 1.9    | 4.1 | 5.9 | 5.1  | 3.3 |
| <b>Pacific</b>  | 2.8            | 3.3 | 3.6    | 1.6 | 6.6 | 6.2  | 2.9 |
| <b>Other</b>  | 4.8            | 6.8 | 5.5    | 7.2 | 9.1 | 9.3  | 6.6 |
| <b>(not stated)</b>   | 70             | 5   | 11     | 10  | 46  | 78   | 220 |
| <b>Technical recall (%)</b>   |                |     |        |     |     |      |     |
| <i>- Indicator (Fixed &lt; 0.5%; Mobile &lt;3%)</i>                                       |                |     |        |     |     |      |     |
| <b>Fixed</b>  | 0.1            | 0.2 | 0.2    | 1.9 | 0.3 | 0.4  | 0.4 |
| <b>Mobile</b>   | 0.6            | 3.8 | 1.2    | 3.9 | 0.3 | 0.4  | 2.0 |
| <b>Technical repeat (definition 2) (%)</b>  |                |     |        |     |     |      |     |
| <i>Indicator &lt;3%</i>   |                |     |        |     |     |      |     |
| <b>Fixed</b>  | 0.7            | 1.4 | 1.0    | 1.8 | 1.1 | 1.6  | 1.1 |
| <b>Mobile</b>   | 0.3            | 0.8 | 0.0    | 1.0 | 0.1 | 0.1  | 0.5 |
| <b>Assessment (%)</b>   |                |     |        |     |     |      |     |
| <i>Indicator – prevalence screen - indicator is &lt;10%, expected indicator is &lt;7%</i> |                |     |        |     |     |      |     |
| <i>- incidence screen - indicator is &lt;5%, expected indicator is &lt;4%</i>             |                |     |        |     |     |      |     |
| <b>Prevalence</b>   | 7.8            | 4.4 | 7.3    | 8.9 | 8.0 | 14.5 | 7.8 |
| <b>Incidence</b>  | 4.4            | 2.5 | 3.1    | 4.2 | 4.4 | 3.5  | 3.8 |
| <b>False positive rate (%)</b>  |                |     |        |     |     |      |     |
| <i>Indicator – prevalence round, indicator is &lt;9%, expected indicator &lt;6%</i>       |                |     |        |     |     |      |     |
| <i>- incidence round, indicator is &lt;4%, expected indicator &lt;3%</i>                  |                |     |        |     |     |      |     |
| <b>Prevalence</b>   | 6.3            | 3.9 | 6.3    | 7.6 | 7.5 | 12.5 | 6.7 |
| <b>Incidence</b>  | 3.3            | 1.8 | 2.4    | 2.9 | 3.8 | 3.0  | 2.9 |
| <b>Open surgical biopsy rate (%)</b>  |                |     |        |     |     |      |     |
| <i>Indicator &lt;1%</i>   |                |     |        |     |     |      |     |
|   | *              | *   | *      | *   | *   | *    | *   |
| <b>Benign biopsy weight (%)</b>   |                |     |        |     |     |      |     |
| <i>Indicator 80% or more benign open biopsy should weigh &lt;20g</i>                      |                |     |        |     |     |      |     |
|   | *              | *   | *      | *   | *   | *    | *   |

\* Not all needle and open biopsies forwarded by lead providers to the National Monitoring Data Set have been forwarded to BSAIMG. As it is known that the data is incomplete these indicators have not been reported. ....continued

**Table 1 (continued).**

**Summary of Lead Provider and BreastScreen Aotearoa results against indicators to 31 March, 2001.**

| Indicator   | LEAD PROVIDERS |      |        |      |      |      | BSA  |
|---|----------------|------|--------|------|------|------|------|
|   | BSAN           | BSM  | BSCtoC | BSC  | BSS  | BSHC |      |
| <b>Needle biopsy rate (%)</b>   |                |      |        |      |      |      |      |
| <i>Indicator – none; *Women who have both FNA and core needle procedures.</i>   |                |      |        |      |      |      |      |
| FNA   | *              | *    | *      | *    | *    | *    | *    |
| Core needle   |                |      |        |      |      |      |      |
| Both*   |                |      |        |      |      |      |      |
| Other   |                |      |        |      |      |      |      |
| Total   |                |      |        |      |      |      |      |
| <b>Specificity (%)</b>  |                |      |        |      |      |      |      |
| <i>Indicator &gt;93%</i>  |                |      |        |      |      |      |      |
| Prevalence  | 93.2           | 95.7 | 93.5   | 92.0 | 92.4 | 86.3 | 92.8 |
| Incidence   | 96.2           | 98.0 | 97.5   | 97.1 | 96.1 | 96.9 | 96.9 |
| <b>Detection rate of DCIS and invasive cancer (per thousand women screened)</b>   |                |      |        |      |      |      |      |
| <i>Indicator – prevalence - ≥ 6 per 1000 women screened</i>   |                |      |        |      |      |      |      |
| <i>- incidence - ≥ 3 per 1000 women screened</i>  |                |      |        |      |      |      |      |
| Prevalence  | 10.4           | 0.7  | 8.3    | 9.4  | 4.9  | 8.3  | 6.9  |
| Incidence   | 6.8            | 5.8  | 6.3    | 12.8 | 5.4  | 4.0  | 6.5  |
| <b>Time taken providing results of screening (%)</b>  |                |      |        |      |      |      |      |
| <i>Indicator – at least 95% notified within 10 days</i>   |                |      |        |      |      |      |      |
|   | 98.6           | 98.7 | 99.8   | 98.7 | 99.4 | 89.6 | 98.0 |
| <b>Time taken from screening visit to first offer of an assessment appointment (%)</b>  |                |      |        |      |      |      |      |
| <i>Indicator – at least 90% offered an assessment appointment within 14 working days of their final screening visit</i>                             |                |      |        |      |      |      |      |
|   | 82.4           | 81.0 | 95.4   | 94.4 | 95.8 | 58.6 | 85.8 |
| <b>Time taken from assessment to final diagnostic biopsy (%)</b>  |                |      |        |      |      |      |      |
| <i>Indicator 1 – at least 90% of women requiring <b>needle biopsy</b> procedure have that procedure completed within 7 days of their assessment</i> |                |      |        |      |      |      |      |
|   | *              | *    | *      | *    | *    | *    | *    |
| <i>Indicator 2 – at least 90% of women requiring <b>open biopsy</b> procedure offered that procedure within 3 weeks of their assessment</i>         |                |      |        |      |      |      |      |
|   | *              | *    | *      | *    | *    | *    | *    |
| <b>Time taken from final diagnostic biopsy to reporting assessment result (%)</b>   |                |      |        |      |      |      |      |
| <i>Indicator – results reported to at least 90% of women within 7 days of final diagnostic biopsy</i>   |                |      |        |      |      |      |      |
|   | *              | *    | *      | *    | *    | *    | *    |
| <b>Time taken from reporting assessment results to first date offered for primary treatment (%)</b>   |                |      |        |      |      |      |      |
| <i>Indicator – at least 90% of women offered primary treatment within 3 weeks of the final diagnosis being reported to the women</i>                |                |      |        |      |      |      |      |
|   | **             | **   | **     | **   | **   | **   | **   |

\* Not all needle and open biopsies forwarded by lead providers to the National Monitoring Data Set have been forwarded to BSAIMG. As it is known that the data is incomplete these indicators have not been reported.

\*\* Insufficient data available for reporting.

## 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 numbers of women registered with BreastScreen Aotearoa are shown in Table 1.1.

Table 1.1. Overall registration rates by lead provider.

| Lead provider | Quarterly number registered<br>(% of projected population) |     | Cumulative number registered<br>(% of projected population) |      |
|---------------|--|-----|---|------|
| BSAN          | 2,710  | 2.8 | 47,684  | 49.4 |
| BSM           | 948  | 2.1 | 36,721  | 81.1 |
| BSCtoC        | 898  | 2.3 | 22,118  | 57.6 |
| BSC           | 1,048  | 3.3 | 16,535  | 52.8 |
| BSS           | 2,751  | 5.4 | 37,886  | 75.0 |
| BSHC          | 676  | 3.2 | 15,924  | 74.6 |
| TOTAL         | 9,031  | 3.2 | 176,868   | 62.4 |

At present, the registration rate (Tables 1.1 and 1.2) does not provide useful information about the number of women registered with BreastScreen Aotearoa or the invitation process. BSAIMG calculates 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, it is recommended that BSAIMG cease reporting registration (Recommendation 1, page vi). Registration will only be a useful measure for monitoring BreastScreen Aotearoa if lead providers have access to a population register so that they can identify and register eligible women (Recommendation 2, page vi).

## 1.2 Registration rate – ethnicity

The number of women registered with BreastScreen Aotearoa by ethnicity is shown in Table 1.2.

Table 1.2. Registration rate by ethnicity and lead provider.

| Lead provider | Quarterly number registered<br>(% of projected population) |              |                |            | Cumulative number registered<br>(% of projected population) |                 |                   |            |
|---------------|--|--------------|----------------|------------|---|-----------------|-------------------|------------|
|               | Maori  | Pacific      | Other          | Not stated | Maori   | Pacific         | Other             | Not stated |
| BSAN*         | 171<br>(1.9)   | 129<br>(1.9) | 2,458<br>(2.8) |            | 3,674<br>(41.5)   | 2,365<br>(35.5) | 40,952<br>(45.8)  | 693        |
| BSM*          | 175<br>(2.5)   | 15<br>(3.1)  | 826<br>(2.0)   |            | 3,729<br>(52.8)   | 294<br>(60.9)   | 31,883<br>(77.9)  | 865        |
| BSCtoC        | 114<br>(2.2)   | 7<br>(2.1)   | 763<br>(2.2)   | 14         | 1,602<br>(30.7)   | 103<br>(30.5)   | 20,286<br>(57.8)  | 127        |
| BSC*          | 60<br>(2.6)  | 13<br>(0.9)  | 978<br>(3.3)   |            | 711<br>(30.5)   | 392<br>(26.2)   | 15,315<br>(52.4)  | 117        |
| BSS*          | 106<br>(5.0)   | 18<br>(4.9)  | 2,677<br>(5.2) |            | 817<br>(38.7)   | 165<br>(45.2)   | 35,344<br>(68.4)  | 1,560      |
| BSHC          | 30<br>(3.2)  | 3<br>(2.7)   | 598<br>(2.8)   | 45         | 287<br>(30.2)   | 41<br>(36.3)    | 15,385<br>(72.3)  | 211        |
| TOTAL         | 656<br>(2.5)   | 185<br>(2.0) | 8,300<br>(3.1) |            | 10,820<br>(40.8)  | 3,360<br>(35.5) | 159,115<br>(59.5) | 3,573      |

\* BreastScreen Auckland and North, BreastScreen Midland, BreastScreen Central and BreastScreen South retrospectively improved the collection of ethnic affiliation and the total number of women with no stated ethnicity was lower at the end of the quarter than previously. As a consequence the quarterly figure has been excluded from the table.

Registration rates for all ethnic groups were lower in this quarter than the previous quarter.

### 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.

Round two of screening for BreastScreen Aotearoa commenced on January 1, 2001. With the commencement of a new screening round population projections were updated for the following two years (Appendix B).

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<br>(% of projected population) |       | Cumulative number screened<br>Round 2<br>(% of projected population) |       |
|---------------|--|-------|--|-------|
|               | BSAN   | 4,812 | 4.6  | 4,812 |
| BSM           | 3,035  | 6.3   | 3,035  | 6.3   |
| BSCtoC        | 2,037  | 5.0   | 2,037  | 5.0   |
| BSC           | 2,240  | 6.9   | 2,240  | 6.9   |
| BSS           | 4,876  | 9.0   | 4,876  | 9.0   |
| BSHC          | 2,120  | 9.5   | 2,120  | 9.5   |
| TOTAL         | 19,120   | 6.3   | 19,120   | 6.3   |

In this, the first quarter of 2001, 19,120 women were screened. This was 6.3% of the eligible population. To achieve 70% coverage of eligible women over a two-year period, lead providers need to screen approximately 9% of the population per quarter. BreastScreen South and BreastScreen HealthCare achieved this coverage in the first quarter of 2001. The quarterly coverage increased from the previous quarter for all lead providers except BreastScreen Midland.

BreastScreen Aotearoa lead providers could potentially increase their coverage if they had access to accurate population registers. The use of an accurate and up-to-date population register would encourage equity of access to screening because it would increase the likelihood that all eligible women received invitations to participate in BreastScreen Aotearoa. It would also be possible to record a woman's decision not to take part, and thus avoid inappropriate re-invitation. The participation rates amongst invited women could be calculated for women invited to their first screens and importantly, for women invited to attend second and subsequent screens. These participation rates would give a good indication of the acceptability of the screening programme to women.

In New Zealand the closest thing we have to a population register is the electoral roll. Ideally information from the electoral roll could be combined with information from general practice age-sex registers, as occurred in the Otago/Southland and Waikato pilot programmes. This is likely to improve coverage nationally and also to encourage equity of access to screening for eligible women.

BSAIMG recommends that each lead provider should have access to a complete list of the women aged 50-64 in their region for the invitation of women to the programme. The Ministry of Health should continue to investigate the availability of an accurate population register (recommendation 2, page vi).

#### 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 for the quarter (Table 1.4a) and cumulative numbers (Table 1.4b) are shown below.

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

| Lead provider | Quarterly number screened<br>(% of projected population) |                |                |                 |
|---------------|--|----------------|----------------|-----------------|
|               | 50-54  | 55-59          | 60-64          | Total           |
| BSAN          | 2144<br>(5.0)  | 1,479<br>(4.3) | 1,189<br>(4.4) | 4,812<br>(4.6)  |
| BSM           | 1316<br>(7.1)  | 863<br>(5.5)   | 856<br>(6.2)   | 3,035<br>(6.3)  |
| BSCtoC        | 828<br>(5.1)   | 634<br>(4.8)   | 575<br>(5.0)   | 2,037<br>(5.0)  |
| BSC           | 877<br>(6.5)   | 752<br>(7.0)   | 611<br>(7.1)   | 2,240<br>(6.9)  |
| BSS           | 2054<br>(9.4)  | 1,498<br>(8.6) | 1,324<br>(9.0) | 4,876<br>(9.0)  |
| BSHC          | 890<br>(9.9)   | 637<br>(9.1)   | 593<br>(9.5)   | 2,120<br>(9.5)  |
| TOTAL         | 8109<br>(6.7)  | 5,863<br>(6.0) | 5,148<br>(6.3) | 19,120<br>(6.3) |

Table 1.4.b Age specific number of women screened and cumulative coverage by lead provider.

| Lead provider | Cumulative number screened<br>(% of projected population) |                |                |                 |
|---------------|---|----------------|----------------|-----------------|
|               | 50-54   | 55-59          | 60-64          | Total           |
| BSAN          | 2144<br>(5.0)   | 1,479<br>(4.3) | 1,189<br>(4.4) | 4,812<br>(4.6)  |
| BSM           | 1316<br>(7.1)   | 863<br>(5.5)   | 856<br>(6.2)   | 3,035<br>(6.3)  |
| BSCtoC        | 828<br>(5.1)  | 634<br>(4.8)   | 575<br>(5.0)   | 2,037<br>(5.0)  |
| BSC           | 877<br>(6.5)  | 752<br>(7.0)   | 611<br>(7.1)   | 2,240<br>(6.9)  |
| BSS           | 2054<br>(9.4)   | 1,498<br>(8.6) | 1,324<br>(9.0) | 4,876<br>(9.0)  |
| BSHC          | 890<br>(9.9)  | 637<br>(9.1)   | 593<br>(9.5)   | 2,120<br>(9.5)  |
| TOTAL         | 8109<br>(6.7)   | 5,863<br>(6.0) | 5,148<br>(6.3) | 19,120<br>(6.3) |

Coverage by age continues to be consistent across each of the three age groups.

## 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<br>(% of projected population) |              |                 |            |                 |
|---------------|--|--------------|-----------------|------------|-----------------|
|               | Maori  | Pacific      | Other           | Not stated | Total           |
| BSAN          | 287<br>(3.2)   | 186<br>(2.8) | 4,269<br>(4.8)  | 70         | 4,812<br>(4.6)  |
| BSM           | 222<br>(3.1)   | 16<br>(3.3)  | 2,792<br>(6.8)  | 5          | 3,035<br>(6.3)  |
| BSCtoC        | 98<br>(1.9)  | 12<br>(3.6)  | 1,916<br>(5.5)  | 11         | 2,037<br>(5.0)  |
| BSC           | 96<br>(4.1)  | 24<br>(1.6)  | 2,110<br>(7.2)  | 10         | 2,240<br>(6.8)  |
| BSS           | 124<br>(5.9)   | 24<br>(6.6)  | 4,682<br>(9.1)  | 46         | 4,876<br>(9.0)  |
| BSHC          | 48<br>(5.1)  | 7<br>(6.2)   | 1,987<br>(9.3)  | 78         | 2,120<br>(9.5)  |
| TOTAL         | 875<br>(3.3)   | 269<br>(2.9) | 17,756<br>(6.6) | 220        | 19,120<br>(6.3) |

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

| Lead provider | Cumulative number screened<br>(% of projected population) |              |                 |            |                 |
|---------------|---|--------------|-----------------|------------|-----------------|
|               | Maori   | Pacific      | Other           | Not stated | Total           |
| BSAN          | 287<br>(3.2)  | 186<br>(2.8) | 4,269<br>(4.8)  | 70         | 4,812<br>(4.6)  |
| BSM           | 222<br>(3.1)  | 16<br>(3.3)  | 2,792<br>(6.8)  | 5          | 3,035<br>(6.3)  |
| BSCtoC        | 98<br>(1.9)   | 12<br>(3.6)  | 1,916<br>(5.5)  | 11         | 2,037<br>(5.0)  |
| BSC           | 96<br>(4.1)   | 24<br>(1.6)  | 2,110<br>(7.2)  | 10         | 2,240<br>(6.8)  |
| BSS           | 124<br>(5.9)  | 24<br>(6.6)  | 4,682<br>(9.1)  | 46         | 4,876<br>(9.0)  |
| BSHC          | 48<br>(5.1)   | 7<br>(6.2)   | 1,987<br>(9.3)  | 78         | 2,120<br>(9.5)  |
| TOTAL         | 875<br>(3.3)  | 269<br>(2.9) | 17,756<br>(6.6) | 220        | 19,120<br>(6.3) |

The number of Maori and other women screened increased this quarter compared with the last quarter of 2000 whilst the number of Pacific women remained the same.

## 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          | 84.8        | 99.1   | 84.8                | 99.1   |
| BSM           | 88.2        | 89.4   | 88.2                | 89.4   |
| BSCtoC        | 89.7        | 93.0   | 89.7                | 93.0   |
| BSC           | 84.7        | 94.7   | 84.7                | 94.7   |
| BSS           | 86.2        | 86.4   | 86.2                | 86.4   |
| BSHC          | 73.9        | 78.7   | 73.9                | 78.7   |
| TOTAL         | 85.3        | 88.5   | 85.3                | 88.5   |

The proportion of women having four films at screening continues to be influenced by lead providers choice of large or small films for screening.

## 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          | 0.1         | 0.6    | 0.1                 | 0.6    |
| BSM           | 0.2         | 3.8    | 0.2                 | 3.8    |
| BSCtoC        | 0.2         | 1.2    | 0.2                 | 1.2    |
| BSC           | 1.9         | 3.9    | 1.9                 | 3.9    |
| BSS           | 0.3         | 0.3    | 0.3                 | 0.3    |
| BSHC          | 0.4         | 0.4    | 0.4                 | 0.4    |
| TOTAL         | 0.4         | 2.0    | 0.4                 | 2.0    |

There remains some uncertainty about whether appropriate data is captured in the national monitoring data set for this indicator. For example, if a woman, whose initial films were taken at a mobile unit, is recalled to a fixed unit for extra films, this should be counted as a technical recall for the mobile unit, not the fixed unit. BSAIMG understands that the Ministry of Health information technology personnel are investigating this issue.

Based on the data we received, in the current quarter all lead providers except BreastScreen Central have met the indicator for technical recall to the fixed screening sites. BreastScreen Midland and BreastScreen Central have exceeded the technical recall rate for the mobile screening units although both results are slightly lower than the previous quarter. BreastScreen Coast to Coast, BreastScreen South and BreastScreen HealthCare also reduced their recall to mobile units from the previous quarter.

## 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          | 0.7                             | 0.3    | 0.7                              | 0.3    |
| BSM           | 1.4                             | 0.8    | 1.4                              | 0.8    |
| BSCtoC        | 1.0                             | 0.0    | 1.0                              | 0.0    |
| BSC           | 1.8                             | 1.0    | 1.8                              | 1.0    |
| BSS           | 1.1                             | 0.1    | 1.1                              | 0.1    |
| BSHC          | 1.6                             | 0.1    | 1.6                              | 0.1    |
| TOTAL         | 1.1                             | 0.5    | 1.1                              | 0.5    |

All lead providers met this performance indicator.

## 2.4 Assessment rate

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

**Indicator** – prevalence screen: indicator is < 10% and the expected indicator is < 7%  
incidence screen: indicator is < 5% and the expected indicator 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<br>(n) |           | Cumulative assessment rate<br>(n) |           |
|---------------|----------------------------------|-----------|-----------------------------------|-----------|
|               | Prevalence                       | Incidence | Prevalence                        | Incidence |
| BSAN          | 7.8 (247)                        | 4.4 (72)  | 7.8 (247)                         | 4.4 (72)  |
| BSM           | 4.4 (66)                         | 2.5 (39)  | 4.4 (66)                          | 2.5 (39)  |
| BSCtoC        | 7.3 (79)                         | 3.1 (30)  | 7.3 (79)                          | 3.1 (30)  |
| BSC           | 8.9 (95)                         | 4.2 (49)  | 8.9 (95)                          | 4.2 (49)  |
| BSS           | 8.0 (215)                        | 4.4 (97)  | 8.0 (215)                         | 4.4 (97)  |
| BSHC          | 14.5 (87)                        | 3.5 (53)  | 14.5 (87)                         | 3.5 (53)  |
| TOTAL         | 7.8 (789)                        | 3.8 (340) | 7.8 (789)                         | 3.8 (340) |

The referral to assessment rate is reported by prevalence and incidence screen. All lead providers achieved results within the indicator range for referral of women to assessment for incidence screening. The BreastScreen Midland referral rate to assessment was low at 2.5% of women screened but the detection rate of DCIS and invasive breast cancer for this group of women was satisfactory at 5.8 per 1000 women screened.

All lead providers met the performance indicator referral to assessment for prevalence screening except BreastScreen HealthCare. BreastScreen HealthCare (14.5%) exceeded the referral rate to assessment for prevalence screening of less than 10% and the expected rate of less than 7%. BreastScreen Midland (4.4%) was considerably lower than the target. The detection rate of DCIS and invasive breast cancer for BreastScreen Midland for this group of women was 0.7% but BSAIMG have been advised that delays in data entry are responsible for this low figure.

As BreastScreen Midland also had a referral rate to assessment that was below the expected indicator for prevalence screens it is recommended that the referral rate to assessment by this lead provider be investigated (recommendation 3, page vi). The significance of a low referral rate is difficult to assess until sensitivity can be estimated (see Appendix 1).

## **2.5 Assessment records of the National Monitoring Data Set**

The National Screening Unit advised BSAIMG that there were 54 outstanding assessment records in the National Monitoring Data Set for the first quarter of 2001. Of these, 18 assessments have since been completed and the record sent to NZHIS for inclusion in the data set. Ten records remained incomplete, 16 women had been placed on extended assessment, seven had exited the programme, two women had exited to be assessed by a private provider and one woman did not require assessment.

## 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 indicator is < 6%  
 -incidence round: indicator is < 4% and the expected indicator 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<br>(n) |           | Cumulative false positive rate<br>(n) |           |
|---------------|--------------------------------------|-----------|---------------------------------------|-----------|
|               | Prevalence                           | Incidence | Prevalence                            | Incidence |
| BSAN          | 6.3 (199)                            | 3.3 (53)  | 6.3 (199)                             | 3.3 (53)  |
| BSM           | 3.9 (58)                             | 1.8 (27)  | 3.9 (58)                              | 1.8 (27)  |
| BSCtoC        | 6.3 (68)                             | 2.4 (23)  | 6.3 (68)                              | 2.4 (23)  |
| BSC           | 7.6 (81)                             | 2.9 (34)  | 7.6 (81)                              | 2.9 (34)  |
| BSS           | 7.5 (200)                            | 3.8 (83)  | 7.5 (200)                             | 3.8 (83)  |
| BSHC          | 12.5 (75)                            | 3.0 (46)  | 12.5 (75)                             | 3.0 (46)  |
| TOTAL         | 6.7 (681)                            | 2.9 (266) | 6.7 (681)                             | 2.9 (266) |

All lead providers except BreastScreen HealthCare met the indicator for prevalence screening but only BreastScreen Midland achieved a rate below the expected indicator. BreastScreen HealthCare's high false positive rate is related to the high referral to assessment rate for prevalent screens.

All lead providers met the indicator for false positive incidence screening. Four lead providers, BreastScreen Midland, BreastScreen Coast to Coast, BreastScreen Central and BreastScreen HealthCare also met or exceeded the expected indicator of three percent or less.

Routine quality assurance and review of films at BreastScreen HealthCare should be used to investigate the high assessment and false positive rates for prevalence 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<br>BSM<br>BSCtoC<br>BSC<br>BSS<br>BSHC |  |   |
| TOTAL                                       |  |   |

BSAIMG had been advised that not all records of open surgical biopsies carried out by lead providers and transferred to the national monitoring data set have been recorded in the data set transferred to the monitoring group for the quarters ending 31 December 2001 and 31 March 2001. As data may be incomplete for some lead providers the table has been left blank. The National Screening Unit has advised BSAIMG that the reason for this has been investigated and corrected. The missing data related to women screened in this quarter will be included in cumulative totals reported in the next BSAIMG quarterly report.

## 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          |  |   |
| BSM           |  |   |
| BSCtoC        |  |   |
| BSC           |  |   |
| BSS           |  |   |
| BSHC          |  |   |
| TOTAL         |  |   |

BSAIMG had been advised that not all records of open surgical biopsies carried out by lead providers and transferred to the national monitoring data set have been recorded in the data set transferred to the monitoring group for the quarters ending 31 December 2001 and 31 March 2001. As data may be incomplete for some lead providers the table has been left blank. The National Screening Unit has advised BSAIMG the reason for this has been investigated and corrected. The missing data related to women screened in this quarter will be included in cumulative totals reported in the next BSAIMG quarterly report.

## 2.9 Needle biopsy rates

### Definition

- Number of women undergoing fine needle aspiration (FNA) as a percentage of the number screened.
- 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 cumulatively are 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<br>% (n) | Core needle only<br>% (n) | Both <sup>††</sup><br>% (n) | Other<br>% (n) | Total |
| BSAN          |                   |                           |                             |                |       |
| BSM           |                   |                           |                             |                |       |
| BSCtoC        |                   |                           |                             |                |       |
| BSC           |                   |                           |                             |                |       |
| BSS           |                   |                           |                             |                |       |
| BSHC          |                   |                           |                             |                |       |
| TOTAL         |                   |                           |                             |                |       |

††Women who have both FNA and core needle procedures

BSAIMG had been advised that not all records of needle biopsies carried out by lead providers and transferred to the national monitoring data set have been recorded in the data set transferred to the monitoring group for the quarters ending 31 December 2001 and 31 March 2001. As these data may be incomplete for some lead providers the table has been left blank. The National Screening Unit has advised BSAIMG the reason for this has been investigated and corrected. The missing needle biopsy data related to women screened in this quarter will be included in cumulative totals reported in the next BSAIMG quarterly report.

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

| Lead Provider | Cumulative Totals |                           |                             |                |           |
|---------------|-------------------|---------------------------|-----------------------------|----------------|-----------|
|               | FNA only<br>% (n) | Core needle only<br>% (n) | Both <sup>††</sup><br>% (n) | Other<br>% (n) | Total     |
| BSAN          | 0.1 (3)           | 0.7 (33)                  | 0.0 (1)                     | 0.1 (5)        | 0.9 (42)  |
| BSM           | 0.1 (2)           | 0.4 (11)                  | 0.0 (0)                     | 0.0 (1)        | 0.5 (14)  |
| BSCtoC        | 0.0 (0)           | 0.5 (10)                  | 0.0 (0)                     | 0.0 (0)        | 0.5 (10)  |
| BSC           | 0.1 (3)           | 1.1 (25)                  | 0.4 (9)                     | 0.0 (0)        | 1.7 (37)  |
| BSS           | 0.1 (5)           | 0.2 (12)                  | 0.0 (0)                     | 0.0 (0)        | 0.3 (17)  |
| BSHC          | 0.5 (11)          | 0.6 (13)                  | 0.0 (0)                     | 0.0 (0)        | 1.1 (24)  |
| TOTAL         | 0.1 (24)          | 0.5 (104)                 | 0.1 (10)                    | 0.0 (6)        | 0.8 (144) |

††Women who have both FNA and core needle procedures

For those women with DCIS and invasive breast cancer detected for the quarter a review of assessment results was undertaken. Some women did not have an entry for either second or third level assessment recorded or clinical assessment at first level assessment recorded. The reason for no records at second or third level assessment may be due to not all needle and open biopsy results being recorded in the national monitoring data set or incorrect data recording. The National Screening Unit should investigate this (recommendation 4, page vi).

## 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%

Specificity results are recorded in Table 2.10.

Table 2.10. Specificity of the programme by lead provider.

| Lead provider | Quarterly specificity<br>(n) |           | Cumulative specificity<br>(n) |           |
|---------------|------------------------------|-----------|-------------------------------|-----------|
|               | Prevalence                   | Incidence | Prevalence                    | Incidence |
| BSAN          | 93.2                         | 96.2      | 93.2                          | 96.2      |
| BSM           | 95.7                         | 98.0      | 95.7                          | 98.0      |
| BSCtoC        | 93.5                         | 97.5      | 93.5                          | 97.5      |
| BSC           | 92.0                         | 97.1      | 92.0                          | 97.1      |
| BSS           | 92.4                         | 96.1      | 92.4                          | 96.1      |
| BSHC          | 86.3                         | 96.9      | 86.3                          | 96.9      |
| TOTAL         | 92.8                         | 96.9      | 92.8                          | 96.9      |

All lead providers achieved the specificity rate for incidence screening for the quarter. BreastScreen Central, BreastScreen South and BreastScreen HealthCare did not achieve the indicator for prevalence screening.

High specificity is facilitated in incidence screening because of the availability of baseline films from previous screens.

### 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  $\geq 6$  per 1000 women screened  
 - incidence round: indicator is  $\geq 3$  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 |           | Cumulative cancer detection rate |           |
|---------------|---------------------------------|-----------|----------------------------------|-----------|
|               | (n)                             |           | (n)                              |           |
|               | Prevalence                      | Incidence | Prevalence                       | Incidence |
| BSAN          | 10.4 (33)                       | 6.8 (11)  | 10.4 (33)                        | 6.8 (11)  |
| BSM*          |                                 | 5.8 (9)   |                                  | 5.8 (9)   |
| BSCtoC        | 8.3 (9)                         | 6.3 (6)   | 8.3 (9)                          | 6.3 (6)   |
| BSC           | 9.4 (10)                        | 12.8 (15) | 9.4 (10)                         | 12.8 (15) |
| BSS           | 4.9 (12)                        | 5.4 (12)  | 4.9 (12)                         | 5.4 (12)  |
| BSHC          | 8.3 (5)                         | 4.0 (6)   | 8.3 (5)                          | 4.0 (6)   |
| TOTAL         | 6.9 (70)                        | 6.5 (59)  | 6.9 (70)                         | 6.5 (59)  |

\*BSAIMG have been advised that data entry delays have resulted in not all cancers detected by BreastScreen Midland being transferred to the national monitoring data set for the quarter.

The quarterly referral to assessment, specificity, false positive rate and detection rate of DCIS and invasive breast cancer are summarised in Table 3.1.1.

Table 3.1.1a. Referral to assessment, specificity, false positive rate and detection rate of DCIS and invasive cancer rate by prevalence screen and lead provider.

| Lead provider | Referral to assessment per 100 women screened | Specificity (%) | False positive rate per 100 women screened | Detection rate per 1000 women screened |
|---------------|---|-----------------|--|--|
| BSAN          | 7.8   | 93.2            | 6.3  | 10.4                                   |
| BSM           | 4.4   | 95.7            | 3.9  | *                                      |
| BSCtoC        | 7.3   | 93.5            | 6.3  | 8.3                                    |
| BSC           | 8.9   | 92.0            | 7.6  | 9.4                                    |
| BSS           | 8.0   | 92.4            | 7.5  | 4.9                                    |
| BSHC          | 14.5  | 86.3            | 12.5                                       | 8.3                                    |
| TOTAL         | 7.8   | 92.8            | 6.7  | 6.9                                    |

\* incomplete data entry so results excluded

The assessment and false positive rates for BreastScreen HealthCare are high, and specificity is lower than expected. Routine quality assurance and review of films at BreastScreen HealthCare should be used to investigate this (recommendation 5, page vi).

Table 3.1.1b. Referral to assessment, specificity, false positive rate and detection rate of DCIS and invasive breast cancer by incidence screen and lead provider for the quarter 1.1.01 – 31.3.01.

| Lead provider | Referral to assessment per 100 women screened | Specificity (%) | False positive rate per 100 women screened | Detection rate per 1000 women screened |
|---------------|---|-----------------|--|--|
| BSAN          | 4.4   | 96.2            | 3.3  | 6.8                                    |
| BSM           | 2.5   | 98.0            | 1.8  | 5.8                                    |
| BSCtoC        | 3.1   | 97.5            | 2.4  | 6.3                                    |
| BSC           | 4.2   | 97.1            | 2.9  | 12.8                                   |
| BSS           | 4.4   | 96.1            | 3.8  | 5.4                                    |
| BSHC          | 3.5   | 96.9            | 3.0  | 4.0                                    |
| TOTAL         | 3.8   | 96.9            | 2.9  | 6.5                                    |

All lead providers met the indicators for incidence screening for assessment, specificity, false positive rate, and detection rate of DCIS and invasive breast cancer.

### 3.2 DCIS and cancer

There is a necessary delay in the recording of detail about DCIS or invasive breast cancer diagnosed due to the time required to arrange treatment and the subsequent recording of treatment data by lead providers. As this is an ongoing issue, cancer details recorded within quarterly monitoring reports will be reported up to the end of the previous quarter. It was anticipated that complete information on cancers detected until the end of the previous quarter would be available, and could be reported, however insufficient data were available for this report. Table 3.2 shows the available data for each lead provider.

Table 3.2 Completion status of pTMN staging for women with DCIS and invasive breast cancer detected from 1 December 1998 to 31 December 2000.

| Lead provider | Number of cancers with pTMN staging completed (total number of cancers) | Percentage completed |
|---------------|---|----------------------|
| BSAN          | 55 (363)  | 15.2%                |
| BSM           | 64 (147)  | 43.5%                |
| BSC to C      | 116 (140)   | 82.9%                |
| BSC           | 61 (108)  | 56.5%                |
| BSS           | 198 (250)   | 79.2%                |
| BSHC          | 19 (87)   | 21.8%                |
| Total         | 513 (1095)  | 46.8%                |

Three lead providers have achieved recording of over fifty percent of the staging and grading of cancers detected to the end of December 2000. The lack of complete information about the cancers detected in BreastScreen Aotearoa needs to be addressed as a priority by the Ministry of Health (recommendation 6, page vi).

## **4. Summary of treatment**

As previously stated in Section 3.2 of this report, the data received about cancer detail were incomplete for the majority of women detected with invasive breast cancer or DCIS to 31 December 2000. Treatment data were also incomplete.

## 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*<br>(number of women) | Cumulative % notified within 10 working days*<br>(number of women) |
|---------------|---|--|
| BSAN          | 98.6 (4,746)  | 98.6 (4,746)   |
| BSM           | 98.7 (2,997)  | 98.7 (2,997)   |
| BSCtoC        | 99.8 (2,032)  | 99.8 (2,032)   |
| BSC           | 98.7 (2,211)  | 98.7 (2,211)   |
| BSS           | 99.4 (4,849)  | 99.4 (4,849)   |
| BSHC          | 89.6 (1,899)  | 89.6 (1,899)   |
| TOTAL         | 98.0 (18,734)   | 98.0 (18,734)  |

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

All lead providers met this performance indicator except BreastScreen HealthCare. BreastScreen HealthCare's reporting of screening results to women has improved from 22.1% in Monitoring Report No 6 to 89.6% in the current quarter. This is a considerable achievement and the lead provider is to be commended for their efforts to improve this aspect of their service to women. Work should continue to achieve appropriate timeliness of reporting results to women (recommendation 8, page vi).

## 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*<br>(number of women) | Cumulative % offered assessment within 14 working days*<br>(number of women) |
|---------------|---|--|
| BSAN          | 82.4 (263)  | 82.4 (263)   |
| BSM           | 81.0 (85)   | 81.0 (85)  |
| BSCtoC        | 95.4 (104)  | 95.4 (104)   |
| BSC           | 94.4 (136)  | 94.4 (136)   |
| BSS           | 95.8 (299)  | 95.8 (299)   |
| BSHC          | 58.6 (82)   | 58.6 (82)  |
| TOTAL         | 85.8 (969)  | 85.8 (969)   |

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

Three lead providers achieved the indicator for offering timely assessment appointments to women. BreastScreen Central and BreastScreen South maintained their performance from the previous quarter and BreastScreen Coast to Coast improved from 78.9% in the previous quarter to 95.4% in the current quarter. BreastScreen Midland and BreastScreen HealthCare did not improve their performance of offering timely assessment appointments in this quarter. The time between having a screening mammogram and an assessment appointment can be stressful for some women. This has the potential to make the screening programme less acceptable, which may influence rescreening rates.

### 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.

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   |   |
|---------------|--|---|--|---|
|               | 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          |  |   |  |   |
| BSM           |  |   |  |   |
| BSCtoC        |  |   |  |   |
| BSC           |  |   |  |   |
| BSS           |  |   |  |   |
| BSHC          |  |   |  |   |
| TOTAL         |  |   |  |   |

BSAIMG had been advised that not all records of needle and open surgical biopsies carried out by lead providers and transferred to the national monitoring data set have been recorded in the data set transferred to the monitoring group for the quarters ending 31 December 2001 and 31 March 2001. As these data may be incomplete for some lead providers the table has been left blank. The National Screening Unit has advised BSAIMG the reason for this has been investigated and corrected. The missing data related to timeliness of biopsies for women screened in this quarter will be included in cumulative totals reported in the next BSAIMG quarterly report.

#### 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<br>% results within 7 days<br>(number of women) | Cumulative<br>% results within 7 days<br>(number of women) |
|---|---|--|
| BSAN<br>BSM<br>BSCtoC<br>BSC<br>BSS<br>BSHC |   |  |
| TOTAL                                       |   |  |

BSAIMG had been advised that not all records of open surgical biopsies carried out by lead providers and transferred to the national monitoring data set have been recorded in the data set transferred to the monitoring group for the quarters ending 31 December 2001 and 31 March 2001. As these data may be incomplete for some lead providers the table has been left blank. The National Screening Unit has advised BSAIMG the reason for this has been investigated and corrected. The missing data related to women screened in this quarter will be included in cumulative totals reported in the next BSAIMG quarterly report.

**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.

As treatment data is incomplete Table 5.5 has been left blank.

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

| Lead Provider                               | Quarterly % women offered Primary treatment within 3 weeks | Cumulative % women offered primary treatment within 3 weeks |
|---|--|---|
| BSAN<br>BSM<br>BSCtoC<br>BSC<br>BSS<br>BSHC |  |   |
| TOTAL                                       |  |   |

## **Appendix A**

The BreastScreen Aotearoa Independent Monitoring Group (BSAIMG) provides information routinely to the Health Funding Authority (HFA) 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 HFA 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 HFA 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  $\leq 10$ 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 1<sup>st</sup> and 2<sup>nd</sup> 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.
- A3.4** HFA and lead providers' review draft reports and feedback 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 HFA within two weeks of receiving feedback. If a serious issue becomes apparent it will be discussed with the HFA prior to this transfer.
- A3.7** HFA circulates reports to each lead provider (own report).
- A3.8** BSAIMG forwards a copy of the report directly to the HFA 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 HFA.
- 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).

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

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

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

## 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.

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

The priority for multiple ethnic group reporting is shown below:

Table 4 Multiple ethnic group reporting priority list.

| <b>Ethnic group</b>                | <b>Priority for multiple ethnic group reporting</b> |
|------------------------------------|---|
| 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.