

# *BreastScreen WA*

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## *2000-2001 Statistical Report*



Department of  
Health



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## Foreword

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I am very pleased to have the opportunity to present to you the BreastScreen WA 2000/2001 Statistical Report.

The year was a busy one for BreastScreen WA. Two clinics relocated to new sites, Cannington in August 2000, and Mirrabooka in October 2000. In the same year BreastScreen WA applied for accreditation with the National Program and was granted three-year Accreditation, the first time the service had been awarded full Accreditation. This was a great milestone for BreastScreen WA, affirming that the program had developed a client orientated service, with high reproducible standards for cancer detection and technical quality performance.

During this time of rapid growth in client attendance, there have been considerable pressures to deliver a cost-effective program. Increases of greater than 9% growth in client attendance have been achieved without a commensurate increase in staff numbers, program costs, or cost per women screened.

In March 2001, BreastScreen WA held a multidisciplinary continuing medical education meeting at Joondalup Country Club. Dr Robin Wilson from Nottingham (UK) was the program's keynote speaker. A strong local faculty supported Dr Wilson and this was an important training opportunity for program staff as well as extending this medical education opportunity to a wider audience of general practitioners, radiographers, medical specialists, nurses and allied health workers.

In 2000 Dr Mike Gibson's time as designated radiologist came to an end, with the appointment of a Medical Director for BreastScreen WA on the 8th of March 2000. The program owes a debt of gratitude to Dr Gibson for his insightful guidance since its inception in 1989. One of Dr Gibson's major achievements was the introduction of the remarkably effective barcode radiology reading system in 1994. This robust reporting system significantly improved radiology reading, safety and efficiency and provided a sound basis for future data management, quality improvement processes and program performance monitoring and reporting.

I must also thank Dr Julian Frayne, who assisted the program by working as Acting Medical Director of BreastScreen WA for more than a year prior to the appointment of a permanent incumbent to that position.

In summary, this Statistical Report 2000/2001 reflects a period of consolidation following the restructure of the program in 1997-1998 and the commencement of dedicated assessment services at Sir Charles Gairdner Hospital and Royal Perth Hospital in 1998.

The excellent cancer and small cancer detection rates reflect a service of high professional competency and would not be possible without the ongoing commitment and dedication of screening, assessment and central coordinating unit support services staff.



Dr Elizabeth Wylie *MBBS FRANZCR*  
Medical Director  
1st March 2005

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## *Introduction*

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The 2000/2001 Annual Statistical Report presents summary data for screens, and assessments resulting from breast cancer screens, for West Australian women who attended the BreastScreen WA program from 1 July 2000 to 30 June 2001.

The data has been extracted from BreastScreen WA's Mammography Screening Registry, which holds information on screened women ranging from their demographics and screen-related personal details to assessment and cancer treatment information, including details about identified cancers such as pathology, size and metastatic status.

The data is presented by age group or screening round, with results for the target age group (50-69 years) highlighted. Comparisons are made throughout the text with the results from the previous Report, for the 1999/2000 screening year, so that trends in performance outcomes and progress towards or beyond minimum standards can be gauged.

A comparison of BreastScreen WA's performance against a selected number of National Accreditation Standards (2002) is also presented throughout the Report and in the Appendix. The National Accreditation Standards describe the minimum standards and requirements developed by the National Accreditation Committee for services operating within the national program, BreastScreen Australia. The former National Accreditation Requirements (1994) were reviewed and expanded to strengthen the quality improvement approach of the national program. Wide consultation was undertaken with BreastScreen services, consumers and representatives of the various disciplines and professional groups. The resulting National Accreditation Standards were endorsed by the National Program's National Accreditation Committee in July 2001 and became operational in July 2002. Comparison with these new standards is considered appropriate for this Report even though in 2000/2001 the program was assessing its performance against the previous version of the performance standards.

General population statistics used as denominators for participation rates were drawn from the Australian Bureau of Statistics 2001 Estimated Resident Population tables. The 2001 Census data was used to derive target population figures for Indigenous women, that is women from Aboriginal or Torres Strait Islander background, and for women who speak a language other than English at home. The latter is referred to here as women from culturally and linguistically diverse backgrounds.

This document performs an important role in allowing BreastScreen WA and others outside the program to monitor program quality and compare performance and outcomes with previously reported information both from within Western Australia and elsewhere within the National Program, BreastScreen Australia.

BreastScreen WA thanks all staff and sessional clinicians for their commitment and dedication to the program, particularly for the quality of the data collected and maintained in the Registry, and to the members of the State Accreditation Committee and others who contributed to this Report.

### ATTENDANCE

- Between July 2000 and June 2001, BreastScreen WA performed 69,707 screens. This represents a 9.5% increase from the previous year. Over 76% of screens were in women in the 50-69 years target age group.
- For the 24-month period to June 2001, the participation rate for women aged 50 to 69 years was 53%, an increase of 1% compared to the previous reporting period.
- Of the women aged 50-69 years who were screened between July 1998 and June 1999, 76% returned for rescreening within 27 months.

### DEMOGRAPHY

- Of all women screened in 2000/2001, and of the women in the target age group, 73% resided in the metropolitan area.
- Indigenous women made up less than 1% (403) of all screens.
- Women of culturally and linguistically diverse background, that is, speaking a language other than English at home, comprised 12% (8,417) of screens.
- For the 24-month period to June 2001, the metropolitan participation rate for women aged 50-69 years was 51%. The metropolitan participation rate for Indigenous women in the same age group was 16% while for women of culturally and linguistically diverse backgrounds it was 53%.

### RECALL TO ASSESSMENT

- In 2000/2001, 4,154 (6%) women were recalled to assessment. Of these 1,563 (12%) were from an initial screening round and 2,591 (5%) were from a subsequent round.
- Of those women recalled to assessment, 2,871 (5% of screens in that age group) were aged between 50 and 69, 1,065 (9%) were aged between 40 and 49 and 217 (5%) were aged from 70 onwards.

### ASSESSMENT PROCEDURES

- On average, each woman recalled for assessment underwent 1.9 assessment procedures. Sixty four percent required only further mammographic views, clinical examination and/or ultrasound to confirm an outcome indicating no significant abnormality.
- Diagnostic open biopsy was recommended for 119 women, representing 3% of all women who were assessed and 0.1% of all women screened.
- The majority of women (90%) who were assessed had a benign outcome and 10% had a malignant lesion diagnosed.
- Of the 399 breast cancers detected, 174 (44%) were diagnosed by fine needle aspiration and 187 (47%) by core biopsy. Diagnosis by core biopsy histology has increased by 18%, compared with 1999/2000.
- Nine percent of all cancers were diagnosed by diagnostic open biopsy.

### BREAST CANCER DETECTION

- A total of 397 screen-detected breast cancers of confirmed histopathology were diagnosed in 2000/2001. Of these, 74% were invasive and 26% were DCIS (ductal carcinoma *in situ*).
- The cancer detection rate was 71 per 10,000 women at their first screen and 54 per 10,000 for women at subsequent screens.
- Interval cancer rates for screens in 1999 were 6.7 and 6.8 per 10,000 for first and subsequent screens, respectively, for the 12 months following a normal mammogram. The combined rate for all screens was 6.8 per 10,000 screens.

### SMALL INVASIVE CANCER DETECTION

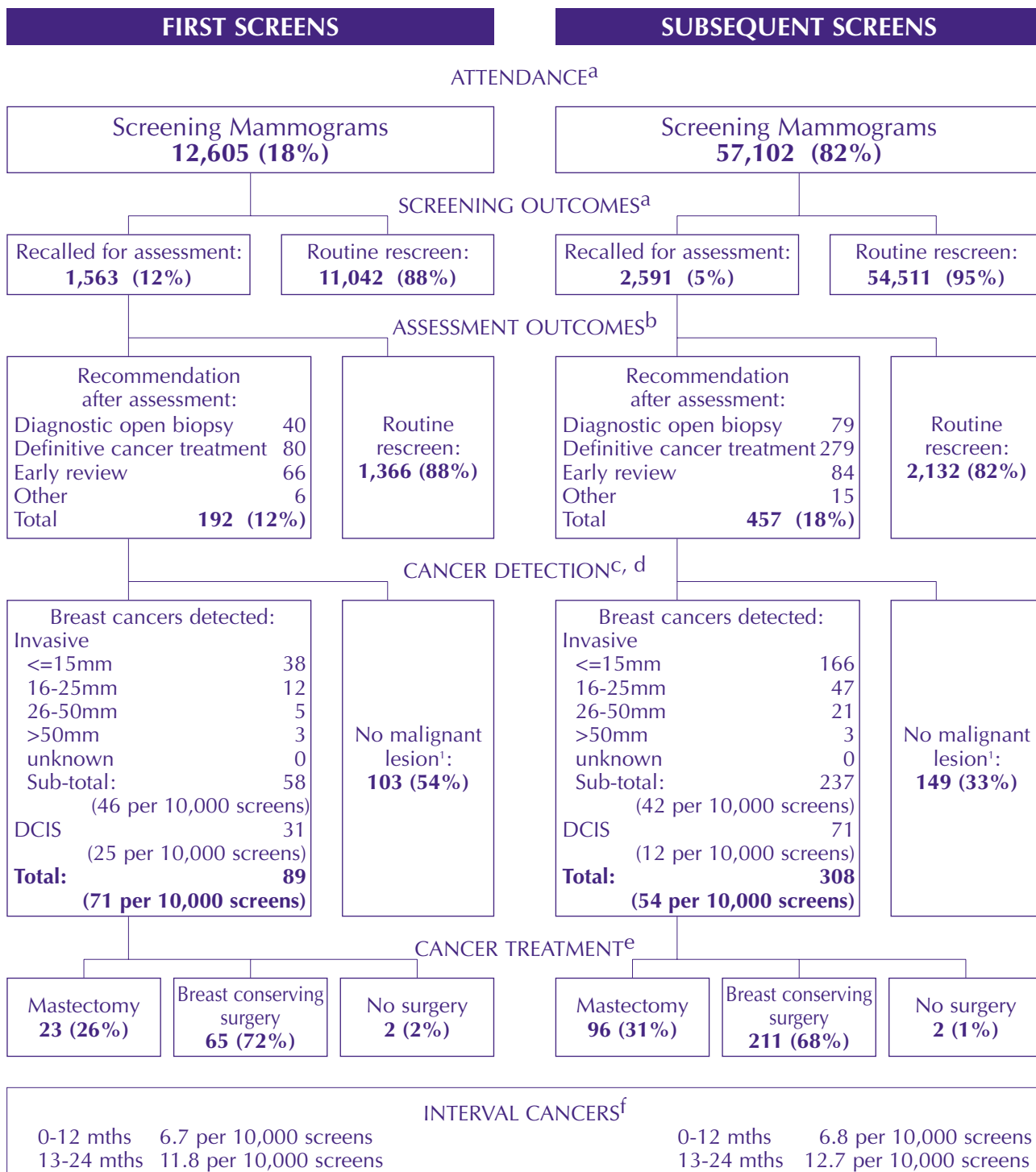
- A key performance measure for breast cancer screening is the proportion of small invasive cancers detected. Of the 295 invasive cancers detected, 38% were 10mm or less in size and 69% were 15mm or less. The small invasive cancer detection rate for cancers  $\leq 15$ mm was 31 per 10,000 women screened in the 50-69 year age group.

### TREATMENT

- Sixty nine percent of all women with breast cancer chose breast conserving surgery while 30% had a mastectomy for the treatment of their breast cancer. The proportion of women choosing mastectomy is higher for women living in country areas (33%) compared to those women resident in the Perth metropolitan area (29%).

## Summary of Outcomes of Breast Cancer Screening in 2000/2001

The table below summarises the outcomes of screening and assessment for women who attended for a screen from July 2000 to June 2001. It displays the information in two streams according to screening round – first screens or all subsequent screens.



SOURCE: a Table 12; b Table 15; c Table 19; d Table 21; e Table 25; f Table 29

1 Benign outcome after diagnostic open biopsy, early review or other

Breast cancer is the most common cancer affecting Western Australian women. Recently published statistics from the WA Cancer Registry indicate that breast cancer accounted for 31 percent of all female cancers in 2001<sup>1</sup>. BreastScreen WA has since 1989 provided a free breast cancer screening and assessment program up to and including a definitive diagnosis of breast cancer or referral for diagnostic open biopsy for the women of Western Australia. BreastScreen WA is part of the national mammographic screening program BreastScreen Australia, aimed at reducing morbidity and mortality from breast cancer through early detection of the disease. The program targets women aged 50 to 69 years, although screening is available to women aged over 40 years. The medical literature shows that the benefits of screening have been most clearly demonstrated in this target age group.

To achieve the program's aims it is critical for the service to maintain high standards of program management and service delivery. The service aims to be compliant with BreastScreen Australian National Accreditation Standards (2002). In October 2003, BreastScreen WA achieved full four-year re-accreditation.

### SERVICE PROVISION

The program aims to make the screening service available and accessible to all eligible women in the state. There are six clinics in the metropolitan area and one mobile unit covering the south and eastern outer metropolitan area. Three other mobile units service the south west, south eastern and northern regions of the state within a two-year cycle. One hundred towns, from as far north as Kununurra, south to Esperance and Laverton to the east are home to the mobile clinic for periods ranging from a few days to twelve months.

BreastScreen WA is responsible for managing the statewide screening service through the State Coordination Unit (SCU) in Perth. The SCU handles appointment bookings for all screening units, coordinating them with recruitment initiatives, clinic capacities and schedules. The SCU is also responsible for film reading, record and data handling and for mailing all invitation, reminder and result letters. The SCU also manages and reports on the financial aspects of the program, monitors and reports on program performance internally and to State and Commonwealth directorates and produces, and coordinates the dissemination of, all promotional materials.

A range of recruitment strategies is developed by the SCU in consultation with consumer and health professional reference groups. Specific strategies are devised for recruitment through general practitioners and community groups, and for recruiting Indigenous women, those from culturally and linguistically diverse backgrounds and for women living in rural and remote regions of the state.

The program also provides assessment of screen-detected abnormalities up to definitive diagnosis, including diagnostic open biopsy. The triple assessment process is utilised, involving clinical examination, imaging with special view mammography and ultrasound, and biopsy pathology. Assessment is conducted in two dedicated and accredited clinics located at Royal Perth Hospital and Sir Charles Gairdner Hospital.

Breast Assessment Nurses inform women and their nominated general practitioner of the need for further assessment, organise appointments at the program assessment centres and offer support and advice to women regarding their assessment visit. Metropolitan clients are invited to attend one of the two assessment centres in Perth, whilst country clients may have their diagnostic further views done on the mobile unit. Some women choose to be assessed privately, outside the program, under the direction of their general practitioner.

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<sup>1</sup> Threlfall TJ, Thompson JR (2003) Cancer Incidence and Mortality in Western Australia, 2001. Department of Health. Western Australia, Perth. Statistical Series No 68.

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## QUALITY IMPROVEMENT

The service operates within the framework of a set of minimum standards and requirements for accreditation within the national program. These were reviewed in 2002 by the National Quality Management Committee of BreastScreen Australia and now comprise an expanded set of core standards and performance targets, called the National Accreditation Standards, which utilise a quality improvement approach to all aspects of screening and assessment, including aspects of service provision such as staff training, data management and consumer satisfaction.

Service and program management committees and senior staff receive reports on various aspects of the service on a regular basis. Frequent auditing of processes and outcomes of both screening and assessment forms part of the program's routine quality improvement activities. Comprehensive and confidential individual performance management for radiologists is a particularly important part of the program's activities, and is conducted quarterly by the Medical Director. Ongoing staff training, quality assurance of data held by the program and equipment and IT programming improvements are also part of the process of ensuring that BreastScreen WA offers the best possible standard of care and service to all women who take part in the program.

## QUALITY IMPROVEMENT COMMITTEE

BreastScreen WA established a Quality Improvement Committee in early 2002 under the auspices of the Health Services (Quality Improvement) Act 1994. The Act grants special immunities and protections, including qualified privilege, for all activities and information gathered by the Committee.

The main role of the Committee is to audit clinical and administrative practices, assess new technologies and oversee compliance with National Accreditation Standards with the aim of continually improving mammography screening services to the women of Western Australia.

In 2003, the service underwent an application for re-accreditation with BreastScreen Australia, and so thoroughly reviewed all its practices and outcomes in relationship to compliance with the National Accreditation Standards. The Quality Improvement Committee's 2003 Report to the Minister for Health thus reflected the service's review of all policies and procedures, and a focus on a broader range of program activities, such as the review of interval cancers; client consent forms; audit of clients refusing to complete assessment or treatment of breast lesions; compliance with the Privacy Act; customer feedback systems; and outcomes of clinical assessment procedures. These system and policy reviews have improved clinical and administrative practices, and the outcomes of case audits have been presented at various clinical seminars.

## Participation Rates

The aim of BreastScreen Australia is to achieve a 70% participation rate for women aged 50-69 years in order to reduce mortality attributable to breast cancer and to realise the benefits of early detection in this population. The participation rate is calculated as the proportion of eligible women in the target age group screened at least once over a 24-month period. Estimates for the number of women in WA are based on the 2001 estimated population figures.

BreastScreen WA uses a number of strategies to encourage women to participate in screening. The program encourages close involvement of general practitioners; invitation and reminder letters, brochures, displays and advertising through the various media are routinely used; community women's groups and health workers are actively involved in campaigns; and special needs groups are supported through liaison with cultural organisations, translation services and disability services. BreastScreen WA launched its own website in December 2001. The website contains fact sheets which can be downloaded and printed and information about breast cancer and the benefits of regular mammographic screening with links to other breast cancer information sites. The site conforms to the Council of Commonwealth and Territory Guidelines for State Government Websites. By meeting the W3C Web Content Accessibility Guidelines, BreastScreen WA has reduced the barriers in accessing information and services on websites faced by groups such as people with disabilities, people in rural and remote areas who have slow connections to the Internet, and people using other technologies such as mobile phones to access the information.

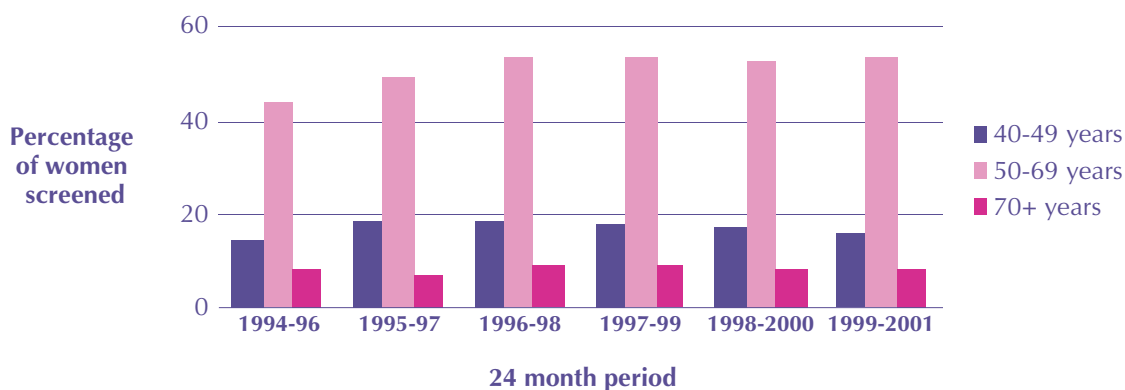
Table 1 shows the participation rates for women screened during the 24-month period July 1999 to June 2001. There has been a 1% increase in the participation rate for women aged 50 to 69 years from 52% in 1998-2000 to 53% in 1999-2001. Overall participation in the program was higher in country areas, with 35% of country women attending compared to 29% of metropolitan women.

**Table 1. Participation rates by place of residence by age group, July 1999 to June 2001**

Place of residence	Age group			Total
	40-49	50-69	70+	
<b>METROPOLITAN</b>				
Number of women screened	16,504	68,270	4,749	89,523
Estimated female resident population	107,772	133,833	65,695	307,300
% population screened	15.3%	51.0%	7.2%	29.1%
<b>COUNTRY</b>				
Number of women screened	6,948	26,023	2,316	35,287
Estimated female resident population	36,616	45,379	18,897	100,892
% population screened	19.0%	57.3%	12.3%	35.0%
<b>TOTAL</b>				
Number of women screened	23,452	94,293	7,065	124,810
Estimated female resident population	144,388	179,212	84,592	408,192
% population screened	16.2%	52.6%	8.4%	30.6%

Figure 1 shows the participation rates for women screened during the 24-month periods from 1994-1996 to 1999-2001. There has been a steady increase in the participation rate for women aged 50 to 69 years from 44% in 1994-1996 to 53% in 1999-2001.

**Figure 1. Participation rates by age group from 1994/1996 to 1999/2001**



Under the revised National Accreditation Standards (2002) programs should seek to achieve a 70% participation rate in the target age group. The participation rate for all women in the 50 to 69 year age group for the 24 months to June 2001 was 53%. The rate for the target age group for Indigenous women for the same period was 31% (Figure 2) and for women speaking a language other than English at home it was 53% (Figure 3). Metropolitan participation rates were lower than country participation rates for all women and for Indigenous women; the reverse was true for women from culturally and linguistically diverse (CALD) backgrounds.

**Figure 2. Participation rates of Indigenous women by place of residence by age group, July 1999 to June 2001**

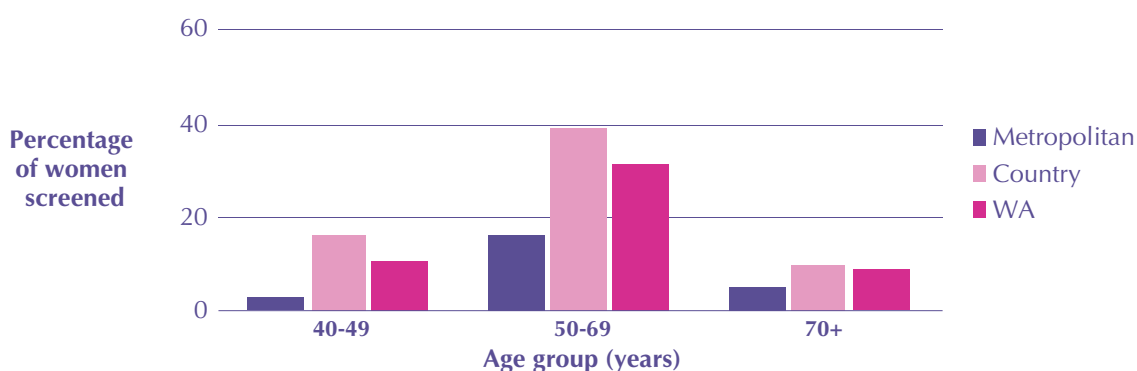
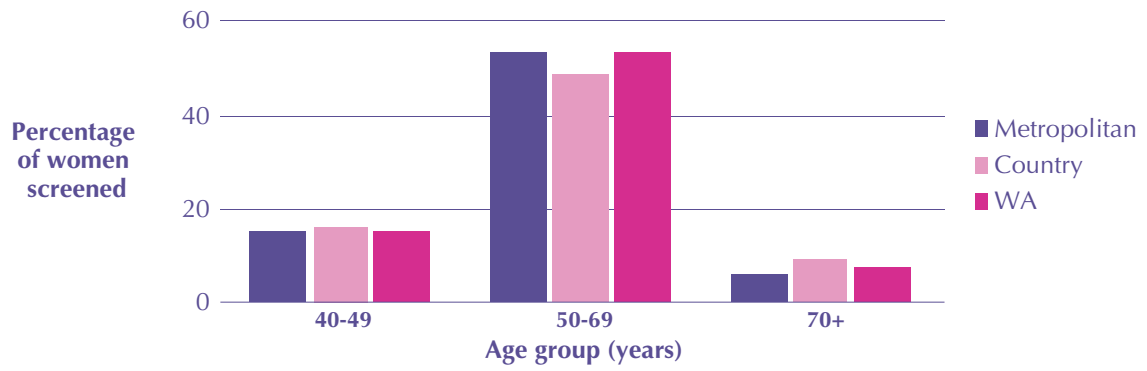


Figure 3. Participation rates of women speaking a language other than English at home by place of residence by age group, July 1999 to June 2001



## Characteristics of Women Screened

Information regarding personal and/or family history of breast cancer, the use of hormone replacement therapy and any previous breast procedures such as mastoplasty or surgery that may affect the accurate assessment of the mammogram are routinely collected at the time of screening. These characteristics of screened women and several demographic features are summarised in the following sections.

### TYPE OF ATTENDANCE

BreastScreen WA does not collect or link to screening information from other screening programs elsewhere in Australia. Throughout this Report, first screens refer to the first screen with BreastScreen WA even though some of these women may have had a previous screen outside the WA program. Subsequent screens include all those subsequent to the first screen, for the time period reported.

Table 2 below illustrates the total number of women screened by age group between 2000/2001. During the 12 month period, 12,278 (18%) of the total number of women screened were aged between 40 and 49, 53,225 (76%) were aged between 50 and 69 and 4,199 (6%) were aged 70 years and over. In 1999/2000 63,661 women were screened. This figure rose to almost 70,000 women screened in 2000/2001. This represents a 9.5% increase in total attendance.

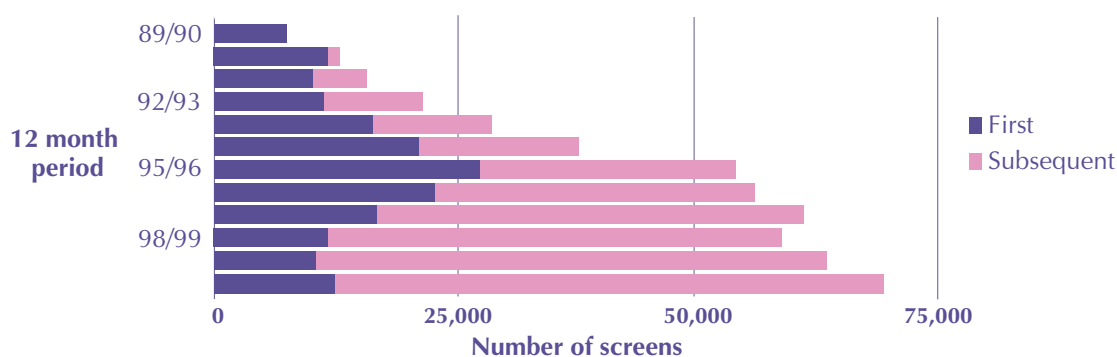
There was an increase of 1% in the number of screens for women aged 50 to 69 years from 75% in 1999/2000 to 76% in 2000/2001

**Table 2. Number of screens by round by age, July 2000 to June 2001**

Age group	<40	40-49	50-59	60-69	70-79	80+	50-69	All ages
TYPE OF ATTENDANCE								
First screens	3	5,505	5,102	1,451	450	94	6,553	12,605
% of first screens	0.0%	43.7%	40.5%	11.5%	3.6%	0.7%	52.0%	100%
Subsequent screens	2	6,773	26,331	20,341	3,400	255	46,672	57,102
% of subsequent screens	0.0%	11.9%	46.1%	35.6%	6.0%	0.4%	81.7%	100%
TOTAL	5	12,278	31,433	21,792	3,850	349	53,225	69,707
% of all screens	0.0%	17.6%	45.1%	31.3%	5.5%	0.5%	76.4%	100%

Since screening commenced in 1989, the program has grown nine-fold from 7,750 screens during the first year of screening to 69,707 screens in 2000/2001 (Figure 4). To June 2001 the program had screened a total of 183,379 women at least once, with approximately 489,000 screens in total, since the start of the program.

**Figure 4. Number of screens by round by 12-month period between 1989/1990 and 2000/2001**



## AREA OF RESIDENCE

Western Australia covers an area of approximately 2.5 million km<sup>2</sup> and, according to 2001 Estimated Resident Population figures, 75% of Western Australian women aged 50-69 years live in the Perth metropolitan area.<sup>2,3</sup>

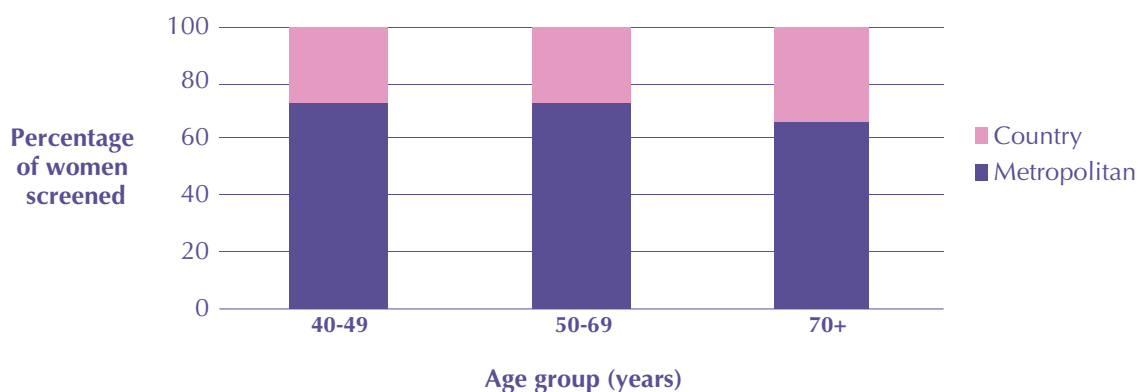
Table 3 and Figure 5 below show the number and proportions of women screened in 2000/2001 by age and area of residence. In 2000/2001, the country mobile units performed 18,966 screens, representing 27% of total screens for that year. This proportion is slightly lower than in 1999/2000. The annual screening throughput in country areas is affected by the mobile unit schedules and on changing populations. The mobile vans visit rural and remote locations on a two-yearly basis.

Seventy three percent of all screens, and of screens in women aged 50-69 years, were in women resident in the metropolitan areas. Compared to the 1999/2000 figures, the proportion of all women screened in the metropolitan area has increased by 1%.

**Table 3. Number of women screened by place of residence, July 2000 to June 2001**

Age group	<40		40-49		50-69		70+		All ages	
	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%
METROPOLITAN	0	0%	8,907	72.5%	39,003	73.3%	2,803	66.8%	50,713	72.8%
COUNTRY	5	100%	3,368	27.4%	14,197	26.7%	1,396	33.2%	18,966	27.2%
Interstate/Unknown	0	0%	3	0%	25	0%	0	0%	28	0%
TOTAL	5	100%	12,278	100%	53,225	100%	4,199	100%	69,707	100%

**Figure 5. Percentage of women screened by place of residence, July 2000 to June 2001**



<sup>2</sup> Metropolitan and rural/remote (i.e. country) classifications are according to the "Rural, Remote and Metropolitan Areas Classification" of the Commonwealth Departments of Health and Family Services and Primary Industries and Energy, January 1994 and based on concordance with statistical local areas.

<sup>3</sup> Australian Bureau of Statistics, Estimated Residential Population, June 2001 (based on the 2001 Census)

## INDIGENOUS WOMEN

This table shows the number of women screened during 2000/2001 who identified themselves as an Aboriginal or Torres Strait Islander. In the 2001 Census, 1.5% (6,053) of all Western Australian women over the age of 40 years identified themselves as being of Aboriginal or Torres Strait Islander (ATSI) descent, with 41% in the screening program target age group of 50 to 69 years and 68% living in rural and remote areas.<sup>4</sup>

In 2000/2001 BreastScreen WA screened 403 indigenous women, representing 0.6% of all screens with 69% of these women in the 50 to 69 year age group. The proportion of indigenous women screened in the target age group has increased by 3% since the previous reporting year while the proportion in the 40-49 year age group has dropped by 3%.

**Table 4. Number of Indigenous women screened by age group, July 2000 to June 2001**

Age group	<40	40-49	50-69	70+	All ages	% of all women
<b>ABORIGINAL OR TORRES STRAIT ISLANDER (ATSI) WOMEN</b>						
Number of women screened	0	104	277	22	403	0.6%
% of women screened	0.0%	25.8%	68.7%	5.5%	100%	
<b>NON-ABORIGINAL OR TORRES STRAIT ISLANDER (ATSI) WOMEN</b>						
Number of women screened	5	12,174	52,948	4,177	69,304	99.4%
% of women screened	0.0%	17.6%	76.4%	6.0%	100%	
<b>ALL WOMEN</b>						
Number of women screened	5	12,278	53,225	4,199	69,707	100%
% of women screened	0.0%	17.6%	76.4%	6.0%	100%	

## WOMEN FROM CULTURALLY AND LINGUISTICALLY DIVERSE BACKGROUNDS

An estimated 12% of West Australian women over the age of 40 years are from culturally and linguistically diverse (CALD) backgrounds, speaking a language other than English at home. Eighty nine percent of these women resident in the metropolitan area are in the 50-69 year age group.<sup>3</sup>

Table 5 shows that in the 12 months to June 2001 the program screened 8,417 CALD women, 12% of all women screened. This represents a 1% increase compared to 1999/2000. The majority (78%) of CALD women screened were in the 50-69 year age group whilst 17% were aged 40-49 years and 5% were aged 70 years or over. The most common languages other than English spoken at home amongst women who attended for a screen in the target age group were Italian, Chinese languages, Dutch and German.

**Table 5. Number of women screened by language spoken at home by age group, July 2000 to June 2001**

Age group	<40	40-49	50-69	70+	All ages	% of all women
<b>WOMEN SPEAKING LANGUAGE OTHER THAN ENGLISH AT HOME</b>						
Number of women screened	1	1,460	6,541	415	8,417	12.1%
% of women screened	0.0%	17.3%	77.7%	4.9%	100%	
<b>WOMEN SPEAKING ENGLISH AT HOME</b>						
Number of women screened	4	10,818	46,684	3,784	61,290	87.9%
% of women screened	0.0%	17.7%	76.2%	6.2%	100%	
<b>ALL WOMEN</b>						
Number of women screened	5	12,278	53,225	4,199	69,707	100%
% of women screened	0.0%	17.6%	76.4%	6.0%	100%	

<sup>4</sup> Australian Bureau of Statistics, Census of Population and Housing 2001.

## PERSONAL HISTORY OF BREAST CANCER

The table below shows the number of women screened who have previously had breast cancer; this may have been detected outside the BreastScreen WA program or been diagnosed at a previous screen within the program. These women are routinely invited for annual rescreening, except if they have had a bilateral mastectomy. Of all women screened in 2000/2001, 1,007 (1%) said they had a personal history of breast cancer. The proportion with personal history was similar to the previous year.

**Table 6. Number of screens where women reported personal history of breast cancer by age group, July 2000 to June 2001**

Age group	<40		40-49		50-59		60-69		70+		50-69		All ages	
	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%
Personal history	0	0.0%	51	0.4%	318	1.0%	444	2.0%	194	4.6%	762	1.4%	1,007	1.4%
No personal history	5	100%	12,227	99.6%	31,115	99.0%	21,348	98.0%	4,005	95.4%	52,463	98.6%	68,700	98.6%
ALL WOMEN SCREENED	5	100%	12,278	100%	31,433	100%	21,792	100%	4,199	100%	53,225	100%	69,707	100%

## FAMILY HISTORY OF BREAST CANCER

In 2000/2001 it was the policy of BreastScreen WA to routinely invite all women with a family history of breast cancer in any first degree relative for annual rescreening. The first degree relative may be a mother, sister, daughter, father, brother or son. Table 7 shows that in 2000/2001, 17% (11,568) of women reported some family history of breast cancer, an increase of 1% from the previous year.

The protocols for screening women with a family history of breast cancer will be updated in 2005 to more closely follow the NH&MRC Clinical Practice Guidelines and standards set by BreastScreen Australia. Women who have only one first-degree relative with breast cancer, where that cancer was diagnosed at age 50 or more, will be returned to biennial screening. The remainder will continue to be offered annual screening as they are deemed to have a significant family history of breast cancer.

**Table 7. Number of screens where women reported a family history of breast cancer by age group, July 2000 to June 2001**

Age group	<40		40-49		50-59		60-69		70+		50-69		All ages	
	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%
Family history	5	100.0%	2,130	17.3%	4,777	15.2%	3,773	17.3%	883	21.0%	8,550	16.1%	11,568	16.6%
No family history	0	0.0%	10,148	82.7%	26,656	84.8%	18,019	82.7%	3,316	79.0%	44,675	83.9%	58,139	83.4%
ALL WOMEN SCREENED	5	100%	12,278	100%	31,433	100%	21,792	100%	4,199	100%	53,225	100%	69,707	100%

## WOMEN REPORTING SYMPTOMS AT SCREEN

The number of screens at which women reported symptoms at the time of screening is shown in Table 8. The category 'Nipple discharge' includes blood stained, clear or non-specific discharge. The category 'Pain/other' includes new, prolonged and/or severe pain and any other symptoms reported.

Because the screening program is aimed at asymptomatic women, those who indicate that they have a symptom at the time of booking are encouraged to visit their general practitioner for a clinical examination, as are those who present at screening with a symptom. Details of the symptom are included in the result letter sent to the woman's general practitioner. Symptomatic women with an abnormal mammogram have a clinical examination at the time of assessment.

From late-2001 onwards, only breast lumps and nipple discharge were classified as significant symptoms and pain was excluded as a symptom significant enough to strongly recommend investigation. Women with significant symptoms and a normal screen are followed up in the program to encourage investigation of the symptom, and data is collected on these assessments. Since late-2001 they have been offered an appointment at a program breast assessment centre to have the symptom investigated.

Ninety nine percent of all screens performed in 2000/2001 were in asymptomatic women. A total of 721 (0.5%) women reported a breast symptom at the time of screening and only half of these were considered significant symptoms – breast lump and/or nipple discharge. Overall the proportion of women reporting significant symptoms has increased by 0.1% compared to the 1999/2000 figures. Women aged 40-49 years reported the largest proportion of significant symptoms.

**Table 8. Number of screens where women reported symptoms by age group, July 2000 to June 2001**

Age group	<40		40-49		50-59		60-69		70+		50-69		All ages	
	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%
SYMPTOMS REPORTED														
Breast lump	0		100		120		46		16		166		282	
Nipple discharge	0		28		33		14		5		47		80	
Breast lump + nipple discharge	0		0		0		0		1		0		1	
Sub-total	0	0.0%	128	1.0%	153	0.5%	60	0.3%	22	0.5%	213	0.4%	363	0.5%
Pain / other	1	20.0%	89	0.7%	147	0.5%	80	0.4%	41	1.0%	227	0.4%	358	0.5%
TOTAL SYMPTOMS	1		217		300		140		63		440		721	
NO SYMPTOMS REPORTED	4	80.0%	12,061	98.2%	31,133	99.0%	21,652	99.4%	4,139	98.6%	52,785	99.2%	68,989	99.0%
ALL WOMEN SCREENED	5	100%	12,278	100%	31,433	100%	21,792	100%	4,199	100%	53,225	100%	69,707	100%

## HORMONE REPLACEMENT THERAPY STATUS

Women are asked at the time of screening whether they have been taking hormone replacement therapy (HRT) during the last six months. HRT usage was reported in 35% of the women in the target age group, representing a decrease of 2% compared with 1999/2000. Across all ages the proportion of women declaring HRT usage has decreased significantly compared with the previous year.

**Table 9. Number of screens where women reported using HRT by age group, July 2000 to June 2001**

Age group	<40		40-49		50-59		60-69		70+		50-69		All ages	
	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%
HRT reported	0	0.0%	1,835	14.9%	11,433	36.4%	6,989	32.1%	848	20.2%	18,422	34.6%	21,105	30.3%
No HRT reported	5	100%	10,443	85.1%	20,000	63.6%	14,803	67.9%	3,351	79.8%	34,803	65.4%	48,602	69.7%
ALL WOMEN SCREENED	5	100%	12,278	100%	31,433	100%	21,792	100%	4,199	100%	53,225	100%	69,707	100%

## WOMEN WITH BREAST IMPLANTS

Table 10 shows that there were 533 (0.8%) screens in women with breast implants. The proportion of women who nominated that they had implants at the time of attending screening is the same as the previous year.

At the time of booking an appointment women are asked if they have breast implants. If so, they are sent a pamphlet containing information about mammography and breast implants prior to their screening. Because of their mammographic opacity, breast implants make it more difficult to detect early breast cancer on a mammogram and special compression techniques must be used and more views taken. Women are also required to sign a special consent form in addition to the normal consent for screening to indicate that they understand the difficulties in screening and detecting abnormalities in breasts with implants. In addition, the result letter to the women and to their nominated general practitioner contains advice about regular clinical breast examination.

**Table 10. Number of screens where women had breast implants by age group, July 2000 to June 2001**

Age group	<40		40-49		50-59		60-69		70+		50-69		All ages	
	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%
Breast implants	0	0.0%	97	0.8%	340	1.1%	90	0.4%	6	0.1%	430	0.8%	533	0.8%
No breast implants	5	100%	12,181	99.2%	31,093	98.9%	21,702	99.6%	4,193	99.9%	52,795	99.2%	69,174	99.2%
ALL WOMEN SCREENED	5	100%	12,278	100%	31,433	100%	21,792	100%	4,199	100%	53,225	100%	69,707	100%

## Rescreen Rates

The rescreen rate is expressed as the percentage of women attending in 1998/1999 who were recommended for re-screening and returned for a rescreen within 27 months. According to BreastScreen Australia's National Accreditation Standards, more than 75% of women aged 50-69 years who had their first screen, and more than 90% of women aged 50-69 years who had a rescreen, should return for a screen within the recommended interval.

The normal recommended interval is two years; those with a family history or personal history of breast cancer and those who have had a previous diagnosis of high-risk breast changes such as atypical hyperplasias are recommended for annual screening. Women aged 70 years and over are not re-invited when they are due but are welcome to attend for a screen. The Table below includes women who have either a yearly or 2-yearly rescreen recommendation.

Table 11 shows that for the target age group of 50-69 years, the overall rescreen rate was 76%. This represents an increase of 5% compared with the previous year (71%). The age at the time of the index year screen (that is, in 1998/1999) is shown. For the target age group, relatively more women (78%) returned if they had a subsequent screen in 1998/1999, compared to first attendees (59%).

**Table 11. Number of women who returned for routine rescreen within 27 months of their 1998/1999 screening**

Type of screening	Age group			Total
	40-49	50-69	70+	
<b>FIRST SCREENS</b>				
Number of women screened in 1998/99	5,734	5,388	717	11,839
Number of women attending rescreening	3,570	3,155	104	6,829
<i>% of women rescreened</i>	62.3%	58.6%	14.5%	57.7%
<b>SUBSEQUENT SCREENS</b>				
Number of women screened in 1998/99	6,297	37,986	2,655	46,938
Number of women attending rescreening	4,940	29,587	1,173	35,700
<i>% of women rescreened</i>	78.5%	77.9%	44.2%	76.1%
<b>TOTAL</b>				
Number of women screened in 1998/99	12,031	43,374	3,372	58,777
Number of women attending rescreening	8,510	32,742	1,277	42,529
<i>% of women rescreened</i>	70.7%	75.5%	37.9%	72.4%

## Outcomes of Screening

Table 12 shows the outcomes of screening for first and subsequent attendances for each age group. Of the 69,707 screens performed in 2000/2001, 94% showed no mammographic abnormality and the women were recommended for routine rescreen. Recall to assessment was recommended for the remaining 6%, 12% of women having an initial screen and 5% a subsequent screen.

The National Accreditation Standards state that less than 10% of women who attend for their first screen and less than 5% of women who attend for their subsequent screen should be recalled to assessment. The recall rate amongst women aged 50-69 years was 12% for first screens, exceeding the standard by 2%, and 4% for subsequent screens.

**Table 12. Outcomes of screening by round by age group, July 2000 to June 2001**

Age group	<40	40-49	50-59	60-69	70+	50-69		All ages	
	No. screens	No. screens	No. screens	No. screens	No. screens	No. screens	%	No. screens	%
<b>FIRST SCREENS</b>									
Routine rescreening	3	4,806	4,458	1,294	481	5,752	87.8%	11,042	87.6%
Referred for assessment	0	699	644	157	63	801	12.2%	1,563	12.4%
Sub-total	3	5,505	5,102	1,451	544	6,553	100%	12,605	100%
<b>SUBSEQUENT SCREENS</b>									
Routine rescreening	1	6,407	25,159	19,443	3,501	44,602	95.6%	54,511	95.5%
Referred for assessment	1	366	1,172	898	154	2,070	4.4%	2,591	4.5%
Sub-total	2	6,773	26,331	20,341	3,655	46,672	100%	57,102	100%
<b>ALL SCREENS</b>									
Routine rescreening	4	11,213	29,617	20,737	3,982	50,354	94.6%	65,553	94.0%
Referred for assessment	1	1,065	1,816	1,055	217	2,871	5.4%	4,154	6.0%
TOTAL	5	12,278	31,433	21,792	4,199	53,225	100%	69,707	100%

## Outcomes of Assessment

### ASSESSMENT PROCEDURES

There were 4,154 (6% of screens) women recalled for assessment following a suspicious mammogram. The number of assessment procedures, by screening round, performed on all women who attended assessment is shown below in Table 13. All assessment outcomes were followed up, including those women who were assessed privately, to ensure a satisfactory outcome was achieved.<sup>5</sup>

An individual woman may be counted more than once if she had more than one procedure performed. Women who had more than one lesion to be assessed may have had different procedures undertaken for each lesion. The average number of procedures performed per woman was 1.9, compared with 2.4 in 1999/2000. Most women who required assessment other than further views had at least two other procedures, such as a clinical examination and ultrasound.

For women screened outside the metropolitan area, diagnostic further views were done at the mobile screening clinic whilst any other procedures were undertaken at a program assessment centre or privately, in consultation with the woman's general practitioner. For women who declined to have further views within the program but who had appropriate assessment work-up elsewhere, the diagnostic views were counted under 'Other mammography' as the full details of these films, such as the number and type of views, could not be determined. Other mammography may also include x-rays taken after an excisional or needle biopsy, or x-rays taken at an early review visit.

Ultrasound remains the most common assessment procedure undertaken, performed on 50% of all women assessed and making up 26% of all assessment procedures, followed by clinical examination (25%). Conversely, the use of diagnostic further views has fallen (36% in 1999/2000 vs. 19% in 2000/2001). With most women now attending the program assessment centres for diagnostic further views, the decrease in further views and the increase in ultrasounds reflect the opportunity to take advantage of ultrasound facilities within the one assessment visit.

A significant increase in the use of core biopsies is observed during 2000/2001 compared with the previous year (14% vs. 8%). In April 2001 vacuum-assisted core biopsy was introduced at both assessment centres; it is anticipated that the procedure will reduce the diagnostic open biopsy rates and that later statistical reports will reflect the benefits of its use.

**Table 13. Assessment procedures performed by round, July 2000 to June 2001**

Procedure	First screens		Subsequent screens		All screens	
	No. procedures	%	No. procedures	%	No. procedures	%
Diagnostic Further Views	489	16.0%	1,001	20.7%	1,490	18.9%
Clinical examination	798	26.1%	1,150	23.8%	1,948	24.7%
Ultrasound	857	28.0%	1,222	25.3%	2,079	26.3%
Fine needle aspiration	361	11.8%	595	12.3%	956	12.1%
Core biopsy	424	13.8%	643	13.3%	1,067	13.5%
Other mammography	91	3.0%	144	3.0%	235	3.0%
Diagnostic open biopsy	43	1.4%	84	1.7%	127	1.6%
<b>TOTAL PROCEDURES</b>	<b>3,063</b>	<b>100%</b>	<b>4,839</b>	<b>100%</b>	<b>7,902</b>	<b>100%</b>
Total women attending for assessment	1,556		2,589		4,145	
Average number of investigations per woman	2.0		1.9		1.9	

<sup>5</sup> There were 10 women who declined assessment, attended then refused any procedures, or who were assessed elsewhere but where no details are available. One woman had assessment (for symptoms) despite a normal screen. In this reporting period the program did not recall women for symptoms assessment only.

## THE DEFINITIVE DIAGNOSTIC PROCEDURE

Table 14 shows the combinations of the various assessment procedures required to reach a diagnosis and the number of women who underwent them. Five women who only had 'Other mammography' (OM) have been included as part of the 'further views' category. Three women who attended for an assessment visit but declined, or did not have, procedures are excluded in Table 14.

Of the 4,145 women who were assessed, 1,509 (36%) required only diagnostic further views to reach a definitive decision; representing a 3% decrease compared with 1999/2000. However, the use of ultrasound as the definitive procedure has increased by 2% in this reporting year compared to the previous year while clinical examination fell by 2%.

Of the women undergoing needle biopsy, 869 (21%) had a core biopsy either with or without FNA. The proportion of women who had a core biopsy has increased by 13%, a significant increase compared with the previous year. Conversely, performance of fine needle aspirations has fallen by 3% whilst the proportion of women who had a diagnostic open biopsy to reach a definitive diagnosis remains unchanged. The increasing use of FNA and core biopsy as well as the vacuum-assisted core biopsy as noted above should result in a smaller proportion of women requiring diagnostic open biopsy to provide a diagnosis. The ability to provide an accurate diagnosis in the majority of cases without the need for diagnostic open biopsy reduces the number of cases which require further, more invasive, investigations.

**Table 14. Procedures giving a definitive diagnosis by round by age group, July 2000 to June 2001**

Age group	<40		40-49		50-59		60-69		70-79		80+		50-69		All ages	
	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%	No. screens	%
<b>FURTHER VIEWS ONLY (FV)</b>																
First screens	0		244		193		48		12		1		241		498	
Subsequent screens	1		147		472		336		51		4		808		1,011	
Sub-total	1	100.0%	391	36.9%	665	36.7%	384	36.5%	63	31.8%	5	33.3%	1,049	36.6%	1,509	36.4%
<b>CLINICAL EXAMINATION (CE)</b>																
+/- FV																
First screens	0		47		27		7		2		1		34		84	
Subsequent screens	0		24		53		27		4		0		80		108	
Sub-total	0	0.0%	71	6.7%	80	4.4%	34	3.2%	6	3.0%	1	6.7%	114	4.0%	192	4.6%
<b>ULTRASOUND (US)</b>																
+/- FV, CE																
First screens	0		168		169		40		9		1		209		387	
Subsequent screens	0		98		243		188		22		2		431		553	
Sub-total	0	0.0%	266	25.1%	412	22.7%	228	21.7%	31	15.7%	3	20.0%	640	22.3%	940	22.7%
<b>FINE NEEDLE ASPIRATION (FNA)</b>																
+/- FV, CE, US, OM																
First screens	0		91		72		20		11		1		92		195	
Subsequent screens	0		36		145		107		24		1		252		313	
Sub-total	0	0.0%	127	12.0%	217	12.0%	127	12.1%	35	17.7%	2	13.3%	344	12.0%	508	12.3%
<b>CORE BIOPSY (CB)</b>																
+/- FV, CE, US, OM, FNA																
First screens	0		130		163		34		18		4		197		349	
Subsequent screens	0		53		215		209		41		2		424		520	
Sub-total	0	0.0%	183	17.2%	378	20.8%	243	23.1%	59	29.8%	2	13.3%	621	21.7%	869	21.0%
<b>DIAGNOSTIC OPEN BIOSY (DOB)</b>																
+/- any of the above procedures																
First screens	0		15		19		6		2		1		25		43	
Subsequent screens	0		8		42		31		2		1		73		84	
Sub-total	0	0.0%	23	2.2%	61	3.4%	37	3.5%	4	2.0%	2	13.3%	98	3.4%	127	3.1%
<b>TOTAL</b>																
First screens	0		695		643		155		54		9		798		1,556	
Subsequent screens	1		366		1,170		898		144		10		2,068		2,589	
ALL SCREENS	1	100%	1,061	100%	1,813	100%	1,053	100%	198	100%	15	100%	2,866	100%	4,145	100%

## RECOMMENDATION AFTER ASSESSMENT

Table 15 shows the recommendation following assessment for women screened by BreastScreen WA in 2000/2001. At the completion of all non-surgical assessment visits, including early review visits, a recommendation is made to return to routine screening, be treated for a malignancy or, in the case of an equivocal lesion, to return for further assessment, which may include open biopsy or early review.

The majority (84%) of women who were assessed had a normal or benign outcome without the need for surgical biopsy. These women were recommended to return to normal two yearly rescreening or may return at one year if the woman has a significant family history or personal history of breast cancer.

Of the 4,147 women who had an assessment visit, 119 (3%) were recommended for diagnostic open biopsy and this figure remains unchanged compared with the previous year.<sup>6</sup>

Every effort is made to minimise the number of visits by the woman for further investigations following the assessment visit and within six months of the initial mammogram – 95% of women should have their assessment completed within two weeks. An early review recommendation involves a return in six month's time for further assessment. In 2000/2001, 150 women or 4% of all women assessed were asked to return for early review, an increase of 1% over the previous 12 months.

The category 'Other' includes unusual cases such as therapeutic excisions for a benign lesion, incomplete assessments, or a leaking prosthesis where the women will be under the future care of the surgeon. A woman who has, by her own choice, an incomplete assessment is usually assigned a rescreen period of one year for her next screening round.

**Table 15. Recommendation after assessment by round by age group, July 2000 to June 2001**

Age group	<40	40-49	50-59	60-69	70-79	80+	50-69		All ages	
							No. Screens	%	No. Screens	%
<b>FIRST SCREENS</b>										
Definitive Treatment for Cancer	0	20	33	14	11	2	47	5.9%	80	5.1%
Diagnostic Open Biopsy	0	13	18	6	2	1	24	3.0%	40	2.6%
Early Review	0	27	28	8	2	1	36	4.5%	66	4.2%
Other	0	4	1	0	1	0	1	0.1%	6	0.4%
Return to routine screening	0	632	564	127	38	5	691	86.5%	1,366	87.7%
Sub-total	0	696	644	155	54	9	799	100%	1,558	100%
<b>SUBSEQUENT SCREENS</b>										
Definitive Treatment for Cancer	0	14	110	125	28	2	235	11.4%	279	10.8%
Diagnostic Open Biopsy	0	6	41	30	1	1	71	3.4%	79	3.1%
Early Review	0	9	43	25	7	0	68	3.3%	84	3.2%
Other	0	4	4	7	0	0	11	0.5%	15	0.6%
Return to routine screening	1	333	972	711	108	7	1,683	81.4%	2,132	82.3%
Sub-total	1	366	1,170	898	144	10	2,068	100%	2,589	100%
<b>ALL SCREENS</b>										
Definitive Treatment for Cancer	0	34	143	139	39	4	282	9.8%	359	8.7%
Diagnostic Open Biopsy	0	19	59	36	3	2	95	3.3%	119	2.9%
Early Review	0	36	71	33	9	1	104	3.6%	150	3.6%
Other	0	8	5	7	1	0	12	0.4%	21	0.5%
Return to routine screening	1	965	1,536	838	146	12	2,374	82.8%	3,498	84.4%
<b>TOTAL</b>	<b>1</b>	<b>1,062</b>	<b>1,814</b>	<b>1,053</b>	<b>198</b>	<b>19</b>	<b>2,867</b>	<b>100%</b>	<b>4,147</b>	<b>100%</b>

<sup>6</sup> The table includes two women who had no procedures at their assessment visit, but nevertheless had a recommendation for that visit.

## DEFINITIVE DIAGNOSIS

Of the 4,147 women who attended assessment, 3,733 (90%) were given a benign diagnosis, while 406 (10%) had a diagnosis of cancer. This outcome is similar to that of 1999/2000.

The proportion of women undergoing only further views to reach a benign outcome fell by 3% compared with 1999/2000 (40% vs. 43%) whilst 60% (2,243) of women assessed required ultrasound or biopsy to reach a benign diagnosis (Table 16).

Of the 406 malignancies detected, three were non-breast cancers (lymphomas) and four were detected at early review and are thus considered interval cancers. The characteristics of these interval and non-breast cancers are excluded in Table 17. Thus 0.6% of all screens or 10% of those attending assessment during the twelve months were found to have breast cancer. These proportions are similar to those of the previous reporting year.

**Table 16. Outcome of assessment by round, July 2000 to June 2001**

Outcome	First screens			Subsequent screens			All screens		
	No. assessments	% of outcome	% of total	No. assessments	% of outcome	% of total	No. assessments	% of outcome	% of total
<b>BENIGN OUTCOMES</b>									
After further views	489	33%		1,001	44%		1,490	40%	
After further assessment	971	67%		1,272	56%		2,243	60%	
Total	1,460	100%	93.7%	2,273	100%	87.8%	3,733	100%	90.0%
<b>MALIGNANT OUTCOMES</b>									
Malignant - breast	90	98%		313	100%		403	99%	
Malignant - other	2	2.2%		1	0.3%		3	0.7%	
Total	92	100%	5.9%	314	100%	12.1%	406	100%	9.8%
INCOMPLETE/OTHER/UNKNOWN	6		0.4%	2		0.1%	8		0.2%
TOTAL OUTCOMES	1,558		100%	2,589		100%	4,147		100%

## METHOD OF PATHOLOGICAL DIAGNOSIS

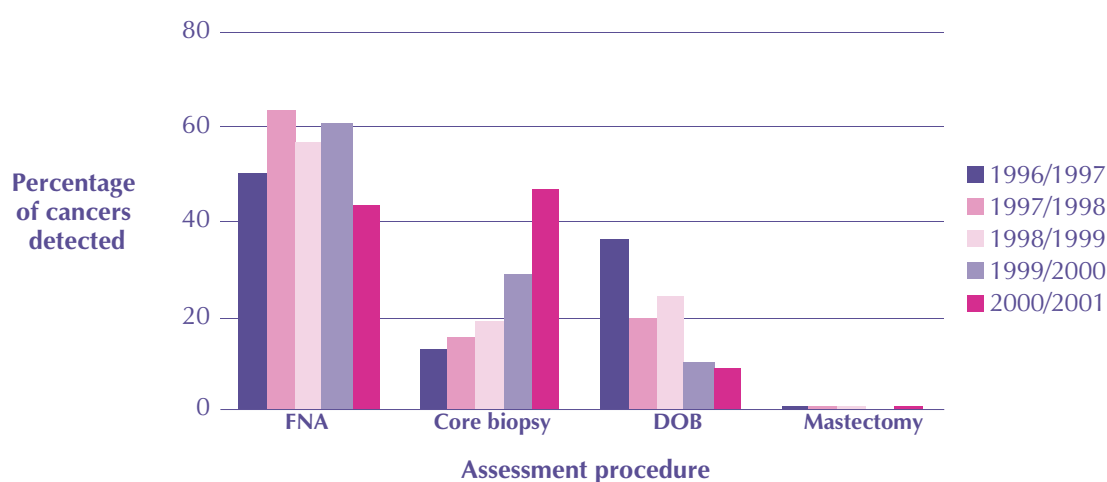
The procedures undertaken for a pathological diagnosis of the breast cancer cases are shown in Table 17. The majority (47%) of cases were diagnosed by core biopsy (29% in 1999/2000), 44% by fine needle aspiration (61% in 1999/2000) and 9% by diagnostic open biopsy (10% in 1999/2000). The pre-operative diagnosis rate was 91% of all breast cancers.

With improvements in diagnostic techniques, there has been a clear shift towards the use of less invasive methods of diagnosis. It is anticipated that the use of core biopsies over surgical open biopsy in obtaining a definitive pre-operative diagnosis of screen detected breast lesions will increase over time. These trends in the use of core biopsy and surgical biopsy are seen in Figure 6.

**Table 17. Procedure yielding the definitive pathological diagnosis of breast cancer by round, July 2000 to June 2001**

Procedure	First screens		Subsequent screens		All screens	
	No. cancers	%	No. cancers	%	No. cancers	%
Fine needle aspiration	32	35.6%	142	46.0%	174	43.6%
Core biopsy	48	53.3%	139	45.0%	187	46.9%
Diagnostic open biopsy	10	11.1%	25	8.1%	35	8.8%
Mastectomy	0	0.0%	3	1.0%	3	0.8%
Other	0	0.0%	0	0.0%	0	0.0%
<b>TOTAL BREAST CANCERS</b>	<b>90</b>	<b>100%</b>	<b>309</b>	<b>100%</b>	<b>399</b>	<b>100%</b>

**Figure 6. Method of pathological diagnosis, 1996/1997 to 2000/2001**



## DIAGNOSTIC OPEN BIOPSY OUTCOMES

An important program performance indicator relates to the conduct of surgical biopsy. With needle biopsies becoming the predominant diagnostic tool, recommendations for diagnostic open biopsy have declined except in cases where the presence of cancer cannot be ruled out on core or fine needle biopsy.

Table 18 shows the number of surgical biopsies performed by age group and attendance type. A total of 125 open biopsies were carried out in 2000/2001. Of those women undergoing open biopsies, 89 (71%) had a benign outcome and 36 (29%) had a malignant result. Compared to the figures from the previous year the proportion of benign outcomes has increased by 1% (70% in 1999/2000) whilst the proportion with a malignant outcome has decreased by 1% (30% in 1999/2000).

**Table 18. Outcomes of diagnostic open biopsy (DOB) procedures by round by age group, July 2000 to June 2001**

Age group	40-49		50-59		60-69		70-79		80+		50-69		All ages	
	No. DOBs	%	No. DOBs	%	No. DOBs	%	No. DOBs	%	No. DOBs	%	No. DOBs	%	No. DOBs	%
<b>BENIGN OUTCOMES</b>														
First screens	12		15		5		0		1		20		33	
Subsequent screens	7		33		14		1		1		47		56	
Sub-total	19	86.4%	48	78.7%	19	52.8%	1	25.0%	2	100%	67	69.1%	89	71.2%
<b>MALIGNANT OUTCOMES</b>														
First screens	3		4		1		2		0		5		10	
Subsequent screens	0		9		16		1		0		25		26	
Sub-total	3	13.6%	13	21.3%	17	47.2%	3	75.0%	0	-	30	30.9%	36	28.8%
<b>TOTAL DOBs PERFORMED</b>														
First screens	15		19		6		2		1		25		43	
Subsequent screens	7		42		30		2		1		72		82	
<b>TOTAL</b>	<b>22</b>	<b>100%</b>	<b>61</b>	<b>100%</b>	<b>36</b>	<b>100%</b>	<b>4</b>	<b>100%</b>	<b>2</b>	<b>100%</b>	<b>97</b>	<b>100%</b>	<b>125</b>	<b>100%</b>

## DETECTION RATES

Table 19 shows the number and rate of breast cancers detected in women screened by BreastScreen WA in 2000/2001. The data include all breast cancers where the pathology is determined to be either invasive or ductal carcinoma *in situ* (DCIS). Of the 399 cases of known breast cancer, two cases are excluded where the details of a surgical biopsy were not available to confirm the histological type. No cancers were detected in women under the age of 40 years.

Of the 397 pathologically confirmed breast cancers, 295 (74%) were invasive and 102 (26%) were DCIS. This compares with 354 breast cancers detected for the previous year. Of those women with screen detected breast cancer, 315 were in the 50-69 year age group.

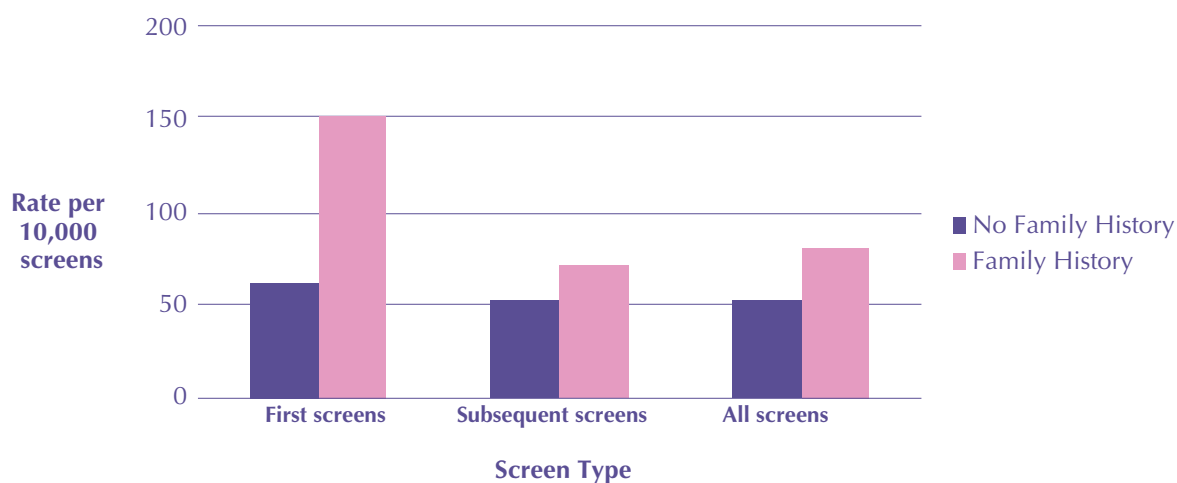
National Accreditation Standards state that programs should seek to achieve an invasive breast cancer detection rate in the target age group of at least 50 per 10,000 first screens and 35 per 10,000 subsequent screens. In 2000/2001, the breast cancer detection rate for women who attended for their first screens was 47 per 10,000 screens and for subsequent screens was 44 per 10,000 screens.

For women with a family history of breast cancer, detection rates for first screens were 2.5 times higher than rates in women without a family history of breast cancer but 1.4 times the rate in subsequent screens (Figure 7).

**Table 19. Breast cancer numbers and detection rate by round by age group, July 2000 to June 2001**

Age group	40-49		50-59		60-69		70-79		80+		50-69		All ages	
	No. cancers	%	No. cancers	%	No. cancers	%	No. cancers	%	No. cancers	%	No. cancers	%	No. cancers	%
<b>INVASIVE CANCERS</b>														
First screens	16		19		12		10		1		31		58	
Subsequent screens	11		95		108		21		2		203		237	
Sub-total	27	73.0%	114	72.2%	120	76.4%	31	75.6%	3	75.0%	234	74.3%	295	74.3%
<b>DCIS</b>														
First screens	7		17		3		3		1		20		31	
Subsequent screens	3		27		34		7		0		61		71	
Sub-total	10	27.0%	44	27.8%	37	23.6%	10	24.4%	1	25.0%	81	25.7%	102	25.7%
<b>ALL BREAST CANCERS</b>														
First screens	23		36		15		13		2		51		89	
Subsequent screens	14		122		142		28		2		264		308	
TOTAL	37	100%	158	100%	157	100%	41	100%	4	100%	315	100%	397	100%
<b>RATE PER 10,000 SCREENS</b>														
<b>Invasive</b>														
First screens	29.1		37.2		82.7		222.2		106.4		47.3		46.0	
Subsequent screens	16.2		36.1		53.1		61.8		78.4		43.5		41.5	
All screens	22.0		36.3		55.1		80.5		86.0		44.0		42.3	
<b>DCIS</b>														
First screens	12.7		33.3		20.7		66.7		106.4		30.5		24.6	
Subsequent screens	4.4		10.3		16.7		20.6		0.0		13.1		12.4	
All screens	8.1		14.0		17.0		26.0		28.7		15.2		14.6	
<b>All Breast Cancers</b>														
First screens	41.8		70.6		103.4		288.9		212.8		77.8		70.6	
Subsequent screens	20.7		46.3		69.8		82.4		78.4		56.6		53.9	
All screens	30.1		50.3		72.0		106.5		114.6		59.2		57.0	

**Figure 7. Breast cancer detection rates by family history status, July 2000 to June 2001**



## HISTOLOGIC TYPE OF BREAST CANCERS

Of the 397 breast cancers detected by the program in 2000/2001, 295 were invasive and 102 were DCIS (Table 20). Two additional cancers were classified as either non-breast or secondary malignancies. There were three cases where surgical treatment was not conducted and pathology could not be confirmed.

The proportion of invasive cancers detected fell by 4% (77% in 1999/2000 to 73% in 2000/2001). The majority of the invasive cancers were ductal types, with the next common being lobular classical and tubular types. Comedo and non-comedo ductal carcinoma *in situ* were the most common non-invasive cancers.

**Table 20. Number of screen-detected cancers by histology by round, July 2000 to June 2001**

Type of cancer	First screens		Subsequent screens		All screens	
	No. cancers	%	No. cancers	%	No. cancers	%
<b>INVASIVE CANCERS</b>						
Invasive Ductal not otherwise specified	42	72.4%	183	77.2%	225	76.3%
Tubular	5	8.6%	16	6.8%	21	7.1%
Cribriform	0	0.0%	0	0.0%	0	0.0%
Mucinous (Colloid)	1	1.0%	3	1.3%	4	1.4%
Medullary	0	0.0%	0	0.0%	0	0.0%
Lobular Classical	6	10.3%	18	7.6%	24	8.1%
Lobular Variant	2	3.4%	6	2.5%	8	2.7%
Mixed Ductal/Lobular	2	3.4%	11	4.6%	13	4.4%
Total invasive cancers	58	99%	237	100%	295	100%
<b>NON-INVASIVE CANCERS</b>						
Comedo DCIS	13	41.9%	37	52.1%	50	49.0%
Non-comedo DCIS	12	38.7%	28	39.4%	40	39.2%
Mixed DCIS	6	19.4%	2	2.8%	8	7.8%
Other DCIS	0	0.0%	4	5.6%	4	3.9%
Total non-invasive cancers	31	100%	71	100%	102	100%
NON-BREAST CANCERS	1		1		2	
UNKNOWN PATHOLOGY	2		1		3	
<b>TOTAL CANCERS</b>	<b>92</b>		<b>310</b>		<b>402</b>	

## CANCER SIZE

Table 21 and 22 provide a summary of all invasive breast cancers detected by tumour size, screening round and age group.

A key performance measure for breast cancer screening is the proportion of small cancers detected (<=15mm in diameter). Of the 295 invasive cancers diagnosed, 69% were 15mm or less in size. The small invasive cancer detection rate for BreastScreen WA was 29 per 10,000 screens across all age groups.

**Table 21. Number of invasive breast cancers by size, July 2000 to June 2001**

Type of cancer	First screens		Subsequent screens		All cancers	%	Rate per 10,000 screens
	No. cancers	%	No. cancers	%			
INVASIVE CANCERS							
<=10 mm	23	39.7%	90	38.0%	113	38.3%	18
<=15 mm	38	65.5%	166	70.0%	204	69.2%	29
16-25 mm	12	20.7%	47	19.8%	59	20.0%	8
26-50 mm	5	8.6%	21	8.9%	26	8.8%	4
>50 mm	3	5.2%	3	1.3%	6	2.0%	1
Size unknown	0	0.0%	0	0.0%	0	0.0%	
TOTAL	58	100%	237	100%	295	100%	42

The National Accreditation Standards specify that services must aim to detect at least 25 invasive breast cancers of 15mm or less in diameter per 10,000 screens in the target age group. The WA program is continuing to achieve a small invasive breast cancer detection rate above the national minimum standard.

As shown in Table 22, 70% of invasive cancers detected in women aged 50-69 years were 15mm or less in size. This figure represents a small invasive breast cancer detection rate of 31 per 10,000 screens.

**Table 22. Number of invasive breast cancers by age group, July 2000 to June 2001**

Age group	40-49		50-59		60-69		70-79		80+		50-69		All ages		Rate per 10,000 screens in 50-69 yr age group
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
INVASIVE CANCERS															
<=10 mm	8	29.6%	41	36.0%	48	40.0%	14	45.2%	2	66.7%	89	38.0%	113	38.3%	17
<=15 mm	16	59.3%	77	67.5%	87	72.5%	22	71.0%	2	66.7%	164	70.1%	204	69.2%	31
16-25 mm	4	14.8%	24	21.1%	23	19.2%	7	22.6%	1	33.3%	47	20.1%	59	20.0%	9
26-50 mm	6	22.2%	10	8.8%	8	6.7%	2	6.5%	0	0.0%	18	7.7%	26	8.8%	3
>50 mm	1	3.7%	3	2.6%	2	1.7%	0	0.0%	0	0.0%	5	2.1%	6	2.0%	1
Size unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
TOTAL	27	100%	114	100%	120	100%	31	100%	3	100%	234	100%	295	100%	44

## NODAL STATUS

Of the 295 invasive breast cancers detected, 250 (85%) women underwent axillary node dissection. Metastatic lymph nodes were discovered in 14% of women whose breast cancer was 15mm or less in diameter and 83% of the six cancers larger than 50mm had lymph node metastases (Table 23).

Nine percent of women with DCIS underwent axillary dissection and none were found to be node positive. The proportion of nodal dissection for *in situ* cancers has decreased significantly compared with 1999/2000 (25%).

**Table 23. Lymph node removal and metastatic status, July 2000 to June 2001**

Type of cancer	No. of cancers (A)	No. where lymph nodes were excised (B)	% of cancers where lymph nodes were excised (B / A)	No. where lymph nodes had metastasis (C)	% of cancers where lymph nodes had metastasis (C / B)
NON-INVASIVE CANCERS					
Ductal Cancer in situ (DCIS)	102	9	8.8%	0	0.0%
INVASIVE CANCERS					
<=15 mm	204	167	81.9%	24	14.4%
16-25 mm	59	53	89.8%	18	34.0%
26-50 mm	26	24	92.3%	15	62.5%
>50 mm	6	6	100.0%	5	83.3%
Size unknown	0	0	0.0%	0	0.0%
Total invasive breast cancers	295	250	84.7%	62	24.8%
NON-BREAST CANCERS	2	1	50.0%	1	0.0%
UNKNOWN PATHOLOGY	3	1	33.3%	0	0.0%
TOTAL CANCERS	399	261	65.4%	63	24.1%

## GRADE OF CANCERS

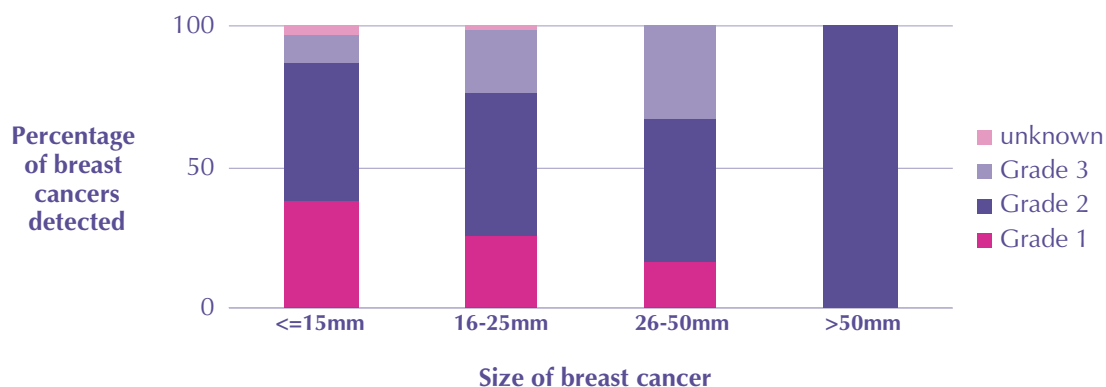
Tumour grade is assigned according to the method originally described by Bloom and Richardson and subsequently modified by Elston (1987).<sup>7</sup> Grade 1 represents a well differentiated, grade 2 a moderately differentiated and grade 3 a poorly differentiated, tumour. The higher the grade of the cancer, the poorer the prognosis.

Table 24 shows the relationship between size of an invasive cancer and tumour grade. Of the 291 invasive cancers detected where the grade was known, 40 (14%) were high grade and 96 (33%) were low grade. Information on tumour grade was not available for nine cancers. Thirty eight percent of cancers less than or equal to 15mm in diameter were found to be grade 1 and 9% were grade 3.

**Table 24. Number of invasive breast cancers by histological grade by size, July 2000 to June 2001**

Histological grade	Size of invasive breast cancer									
	<=15mm		16-25mm		26-50mm		>50mm		Total	
	No. cancers	%	No. cancers	%	No. cancers	%	No. cancers	%	No. cancers	%
Grade 1	77	38.1%	15	25.4%	4	16.7%	0	0.0%	96	33.0%
Grade 2	98	48.5%	30	50.8%	12	50.0%	6	100.0%	146	50.2%
Grade 3	19	9.4%	13	22.0%	8	33.3%	0	0.0%	40	13.7%
Unknown	8	4.0%	1	1.7%	0	0.0%	0	0.0%	9	3.1%
<b>TOTAL INVASIVE BREAST CANCERS</b>	<b>202</b>	<b>100%</b>	<b>59</b>	<b>100%</b>	<b>24</b>	<b>100%</b>	<b>6</b>	<b>100%</b>	<b>291</b>	<b>100%</b>

**Figure 8. Proportions of invasive breast cancers by histological grade by size, July 2000 to June 2001**



<sup>7</sup> Elston, CW. Grading of invasive carcinoma of the breast. In 'Diagnostic Histopathology of the Breast'. DL Page and TJ Anderson. Churchill Livingstone 1987.

## CANCER TREATMENT

Table 25 shows the procedures carried out on screen detected cancers, by screening round. Lesions diagnosed as malignant were removed in all but four cases, where surgical treatment at that time was deemed inappropriate. Breast conserving surgery is defined as surgery where a lump of tissue containing the breast cancer was removed, or where the whole lesion was removed during diagnostic open biopsy surgery. Mastectomy (complete removal of the breast) was required by some women with a large cancer or multifocal disease, or may have been a second surgical treatment after a malignancy was confirmed on diagnostic open biopsy.

The majority of malignancies were removed using breast conservation techniques. In 2000/2001, 69% of women had breast conservation surgery and 30% had a mastectomy. The proportion of women undergoing conservative surgery was similar to the figure for 1999/2000 and in keeping with the expected rate for mammographically detected cancers.<sup>8,9</sup>

**Table 25. Number of surgical procedures for breast cancer treatment by round, July 2000 to June 2001**

Surgical procedure for treatment	First screens		Subsequent screens		All screens	
	No. procedures	%	No. procedures	%	No. procedures	%
Breast conserving surgery	65	72.2%	211	68.3%	276	69.2%
Mastectomy	23	25.6%	96	31.1%	119	29.8%
No surgery / unknown	2	2.2%	2	0.6%	4	1.0%
TOTAL BREAST CANCERS	90	100%	309	100%	399	100%

Two cases where histology was not available are not included in Table 26. Mastectomy was a more common treatment for DCIS than for invasive cancers because *in situ* cancers tend to be larger and more diffuse and mastectomy is often the preferred treatment option.

**Table 26. Number of surgical procedures for breast cancer treatment by type of cancer, July 2000 to June 2001**

Surgical procedure for treatment	Invasive cancers		DCIS		All cancers	
	No. procedures	%	No. procedures	%	No. procedures	%
Breast conserving surgery	208	70.5%	67	65.7%	275	69.3%
Mastectomy	85	28.8%	34	33.3%	119	30.0%
No surgery / unknown	2	0.7%	1	1.0%	3	0.8%
TOTAL BREAST CANCERS	295	100%	102	100%	397	100%

Treatment by mastectomy for women residing outside the metropolitan area was 33% compared to 29% for metropolitan residents. In 1999/2000, 38% of country women and 26% of metropolitan women underwent mastectomy, whilst in 1998/1999, 47% of country women and 32% of metropolitan women had mastectomy. These patterns of management, particularly for country women, reflect the recommendations of the 1995 NHMRC treatment guidelines.

**Table 27. Number of surgical procedures performed for treatment of breast cancer by place of residence, July 2000 to June 2001**

Surgical procedure for treatment	Metropolitan		Country		Total	
	No. procedures	%	No. procedures	%	No. procedures	%
Breast conserving surgery	210	70.0%	66	66.7%	276	69.2%
Mastectomy	86	28.7%	33	33.3%	119	29.8%
No surgery / unknown	4	1.3%	0	0.0%	4	1.0%
TOTAL BREAST CANCERS	300	100%	99	100%	399	100%

8 NHMRC National Breast Cancer Centre. Clinical Practice Guidelines for the Management of Early Breast Cancer. Canberra 1995.

9 NHMRC, iSource National Breast Cancer Centre. Clinical Practice Guidelines for the Management of Early Breast Cancer (second edition). Canberra 2001.

## ADJUVANT THERAPY

Seventy seven percent of women with a diagnosed breast cancer received some type of adjuvant therapy. Radiotherapy and Tamoxifen, alone or in combination, were the most common follow-up treatments. Adjuvant therapy was given to 90% of women with invasive cancer and 38% of those with DCIS. The proportion of women with DCIS who received adjuvant therapy has decreased by 2% compared with the previous year. For women with invasive breast cancer the use of adjuvant therapy remains unchanged.

**Table 28. Adjuvant therapy for treatment of breast cancer by type of cancer, July 2000 to June 2001**

Adjuvant therapy	Invasive		DCIS		Total	
	No. procedures	%	No. procedures	%	No. procedures	%
Chemotherapy	9	3.1%	0	0.0%	9	2.3%
Radiotherapy	36	12.2%	20	19.6%	56	14.1%
Tamoxifen	43	14.6%	3	2.9%	46	11.6%
Chemotherapy & Radiotherapy	14	4.7%	0	0.0%	14	3.5%
Chemotherapy & Tamoxifen	9	3.1%	0	0.0%	9	2.3%
Radiotherapy & Tamoxifen	121	41.0%	14	13.7%	135	34.0%
Chemotherapy & Radiotherapy & Tamoxifen	18	6.1%	1	1.0%	19	4.8%
Radiotherapy & Other	1	0.3%	0	0.0%	1	0.3%
Tamoxifen & Other	3	1.0%	0	0.0%	3	0.8%
Radiotherapy & Tamoxifen & Other	8	2.7%	0	0.0%	8	2.0%
Chemotherapy & Tamoxifen & Other	3	1.0%	0	0.0%	3	0.8%
Other	0	0.0%	1	1.0%	1	0.3%
None/Unknown	30	10.2%	63	61.8%	93	23.4%
<b>TOTAL BREAST CANCERS</b>	<b>295</b>	<b>100%</b>	<b>102</b>	<b>100%</b>	<b>397</b>	<b>100%</b>

## Interval Cancer Rate

Interval cancers are invasive breast cancers that are diagnosed in the interval following a negative screening episode and before the next scheduled screening episode. Cases to be classified as interval breast cancers include women recommended for early review who are diagnosed between 6-12 months after completion of screening; women at early rescreen who present with a symptom in the same breast in which invasive cancer is diagnosed; or women diagnosed between 6 and 24 months after a recommendation is made for assessment and the woman fails to attend. Interval cancers are ascertained through a process of data matching between the WA Cancer Registry and BreastScreen WA databases, and through notification by surgeons or general practitioners.

Women are considered at risk of interval cancer for differing periods post-screening depending on risk factors such as a personal or a family history of breast cancer. These women are screened at one year intervals in the BreastScreen WA program and are 'at risk' for 12 months after their last normal screen. They are only included in the interval cancer count for those first 12 months. Conversely, those recommended for 2 yearly screening are included in the interval cancer count for both the first 12-month period as well as the 13 to 24 month period post-screening. Interval cancers for 0 to 12 months and 13 to 24 months are calculated per 10,000 screens as the number of interval breast cancers divided by the number of women years at risk.

The National Accreditation Standards state that no more than 6.5 per 10,000 screened women aged 50-69 will develop breast cancer in the 12 months following a negative screening episode. Table 29 shows the interval cancer rates by age group and screening round for screens from January to December 1999. The interval cancer rate for the first 12 months for this age group following a normal screen in 1999 was 5.7 per 10,000 screens.

**Table 29. Interval cancer rates for 1999 screens by round by age group**

Screen type and time since last screen	Age group				50-69	Total
	40-49	50-59	60-69	70+		
<b>FIRST SCREENS</b>						
Cancers detected between 0-12 months						
Number of interval cancers	4	2	1	0	3	7
Number of women years at risk	5,396	3,310	1,129	545	4,439	10,380
Interval Cancer Rate	7.4	6.0	8.9	0.0	6.8	6.7
Cancers detected between 13-24 months						
Number of interval cancers	2	5	2	2	7	11
Number of women years at risk	4,781	3,012	1,040	481	4,052	9,314
Interval Cancer Rate	4.2	16.6	19.2	41.6	17.3	11.8
<b>SUBSEQUENT SCREENS</b>						
Cancers detected between 0-12 months						
Number of interval cancers	6	14	8	5	22	33
Number of women years at risk	6,650	22,413	17,159	2,556	39,572	48,778
Interval Cancer Rate	9.0	6.2	4.7	19.6	5.6	6.8
Cancers detected between 13-24 months						
Number of interval cancers	1	27	20	3	47	51
Number of women years at risk	5,144	18,731	14,264	2,132	32,995	40,271
Interval Cancer Rate	1.9	14.4	14.0	14.1	14.2	12.7
<b>ALL SCREENS</b>						
Cancers detected between 0-12 months						
Number of interval cancers	10	16	9	5	25	40
Number of women years at risk	12,046	25,723	18,288	3,101	44,011	59,158
Interval Cancer Rate	8.3	6.2	4.9	16.1	5.7	6.8
Cancers detected between 13-24 months						
Number of interval cancers	3	32	22	5	54	62
Number of women years at risk	9,925	21,743	15,304	2,613	37,047	49,585
Interval Cancer Rate	3.0	14.7	14.4	19.1	14.6	12.5

## Appendix – Minimum performance standards

Minimum standards and requirements are in place for accredited services operating within BreastScreen Australia. The table below summarises the performance of BreastScreen WA against selected National Accreditation Standards (2002) using the information presented in this Report.

Standard	Performance Objective	Standard	BreastScreen WA Performance
1.1.1	The service maximises the proportion of women aged 50-69 who are screened every two years.	> 70% of women aged 50-69 participate in screening in the most recent 24-month period.	Participation to June 2001 was 53%.
2.6.1	The service minimises recalls for assessment.	< 10% of women who attend for their first screen are recalled for assessment.	12% of first screens were recalled for assessment.
2.6.2	The service minimises recalls for assessment.	<5% of women who attend for their second or subsequent screen are recalled for assessment.	5% of second or subsequent screens were recalled for assessment.
2.7.1	The service maximises the preoperative diagnosis of invasive cancer or DCIS.	>75% of invasive cancers or DCIS are diagnosed without the need for diagnostic open biopsy.	The pre-operative diagnosis rate was 91% of all breast cancers.
2.1.1	The service maximises the detection of invasive breast cancers.	> 50 per 10,000 women aged 50-69 years who attend for their first screen are diagnosed with invasive breast cancer.	The invasive breast cancer detection rate for women aged 50-69 years who attended for their first screens was 47 per 10,000 screens.
2.1.2	The service maximises the detection of invasive breast cancers.	> 35 per 10,000 women aged 50-69 years who attend for their second or subsequent screen are diagnosed with invasive breast cancer.	The invasive breast cancer detection rate for women aged 50-69 years who attended for their second or subsequent screens was 44 per 10,000 screens.
2.2.1	The service maximises the detection of small invasive breast cancers.	>25 per 10,000 women aged 50-69 who attend for screening are diagnosed with small (<15mm) invasive breast cancer.	31 invasive breast cancers <15mm were detected per 10,000 screens in women aged 50-69 years.
2.3.1	The service maximises the detection of DCIS.	> 12 per 10,000 women aged 50-69 years who attend for their first screen are diagnosed with DCIS.	The DCIS detection rate for women aged 50-69 years who attended for their first screens was 31 per 10,000 screens.
2.3.2	The service maximises the detection of DCIS.	> 7 per 10,000 women aged 50-69 years who attend for their second or subsequent screen are diagnosed with DCIS.	The DCIS detection rate for women aged 50-69 years who attended for their second or subsequent screens was 13 per 10,000 screens.
2.4.2	The service minimises the number of invasive interval cancers.	<6.5 per 10,000 women aged 50-69 who attend for screening are diagnosed with an invasive cancer between 0 and 12 months following a negative screening episode.	In the period 0-12 months following a screen, the interval cancer rate was 5.7 for women aged 50-69 years.





