



BreastScreen Victoria

1997 Annual Statistical Report

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BREASTSCREEN VICTORIA 1997 HIGHLIGHTS

Breast cancer poses a serious problem for Australian women and despite treatment advances there has been only slight improvement in mortality from breast cancer in the last fifty years. When trials of population-based mammography screening showed that mortality from breast cancer could be substantially reduced, a national screening program was established with the objective of discovering breast cancer at an earlier stage and when treatment is likely to be more effective.

Screening uptake

A large number of Victorian women take advantage of the BreastScreen service which offers free mammography screening to women every two years. In 1997, 150,681 women attended, 75% of whom were aged 50-69 years, the age range in which mammography screening is proven to be of most benefit.

Fifty-five percent of all Victorian women aged 50-69 years utilised BreastScreen in the two years to December 1997. As the aim is to screen 70% of this group in order to achieve the anticipated reduction in deaths from breast cancer, we still have some way to go. In 1997, more women than ever came to the screening program for their second or subsequent screens (71%, compared with 57% in 1996, and 17% in 1995). Women who have attended previously are much more likely to accept an invitation for screening than are women being invited for the first time.

Many factors influence rates of participation, including the accessibility of screening centres, workforce availability, and the acceptability of the service to women. These issues are closely monitored, for example, work is underway on strategies to recruit and retain radiographers within BreastScreen Victoria to ensure that the current shortage of radiographers specialising in mammography does not unduly constrain growth in screening throughput.

Specialist multidisciplinary assessment

Like all screening tests, mammography screening is not diagnostic. It simply separates the population into those who may have breast cancer and those who probably do not. Women whose screening films indicate suspicious changes require a series of diagnostic investigations from which a conclusion is reached about the presence or absence of disease.

As expected, the rate of recall to BreastScreen for assessment in women who have attended previously was less than half that in women coming for the first time. In 1997, 9.3% of first attenders had assessment recommended while 4.5% of subsequent attenders were recalled. These rates of recall were higher than those in 1996 when 6.9% of first attenders and 3.8% of subsequent attenders had assessment recommended. Reasons for increased recall rates are being investigated including, for example, the possible role of a new film introduced during 1997 that produces a better quality image with increased resolution and contrast.

A woman recalled to BreastScreen is assessed by a multidisciplinary team which has the experience gained from assessing large numbers of women and is specifically trained in the diagnosis of small cancers. Assessment is organised so that the necessary tests can be completed as much as possible at one visit and most women can be reassured before they leave the clinic that they do not have breast cancer. In 1997, 74% of women who came for assessment received a definitive diagnosis after further imaging or clinical examination, thus avoiding more invasive procedures. Where a tissue biopsy is needed, advances in breast

biopsy techniques mean that the majority of women can now have a core needle biopsy under local anaesthetic rather than an open surgical biopsy. In 1997, only 4% of women assessed needed an open biopsy.

About the breast cancers diagnosed

Rates of breast cancer detection give encouragement that BreastScreen Victoria is performing well. In 1997, 814 women were diagnosed with breast cancer, equating to 5.4 cancers per 1,000 women screened. Among asymptomatic women, subsequent attenders were diagnosed with fewer cancers (4.6 per 1,000 screened) than first attenders (6.0 per 1,000). As expected, cancer detection rates increased with age.

The detection rate for small cancers is an important predictor of improvements in survival following breast cancer. In 1997, 36% of the invasive breast cancers detected were 10mm or less in diameter offering women more chance of successful recovery. Detection rates for all cancers and for small cancers both exceeded the standards set for the national screening program.

The majority of small invasive tumours detected within BreastScreen could not be felt on clinical examination (78% of cancers 10mm or less, 55% of cancers 11–15mm). In women whose tumours were both small (10mm or less) and impalpable and who underwent an axillary node dissection, 94% of cancers were node negative, that is, they had not spread into the lymph nodes. This is a strong indicator of good outcome and affirms the role of screening mammography in detecting tumours at an early stage before women develop breast symptoms.

Despite achievement of detection targets for all breast cancers and for small tumours, interval cancer rates reported here for women attending for their first screen in 1995 were higher than expected. Interval cancers are cancers that are diagnosed in the time interval following attendance for screening but before the next screening attendance is due. Other screening programs have also reported higher rates of interval cancers than those obtained in the Swedish Two Counties Trial, which is often quoted as a world standard. Like other programs, BreastScreen Victoria is investigating ways to improve the sensitivity of the Program. Two projects are underway which we hope will contribute to our understanding of this important issue: an internal radiological review of interval cancers, and an independent study examining the impact of hormone replacement therapy use and mammographic density on the accuracy of screening mammography.

Management of screen-detected breast cancers

While treatment services are not provided within the BreastScreen Program, with the agreement of women we collect basic information about further management of screen-detected breast cancers for evaluation purposes. The first step in the treatment of invasive breast cancer is usually surgical removal of the primary tumour. Recent shifts in patterns of breast cancer treatment mean that fewer Victorian women with small invasive tumours are undergoing mastectomy. Within BreastScreen Victoria, 72% of women diagnosed with invasive breast cancer had breast-conserving surgery, compared with 66% in 1996.

Among women diagnosed with ductal carcinoma in situ (DCIS) only, 22% were treated by mastectomy. By definition, DCIS is non-invasive and indicates that cancerous cells are confined within the milk ducts and have not spread into the surrounding breast tissue. Twenty percent of women diagnosed with DCIS within BreastScreen also underwent

axillary node dissection or sampling, although none were found to have positive nodes. Complete axillary dissection for women with DCIS is no longer considered routine. Similarly, among women with invasive breast cancer and in whom axillary dissection may be considered, 12% of those diagnosed within BreastScreen did not undergo this procedure. Axillary dissection in very early breast cancer is currently under review in the surgical community.

Information on adjuvant therapy, available for over 90% of screen-detected cancers, is presented here for the first time. Radiotherapy assists in achieving local control of breast cancer, and in 1997 its use in women diagnosed within BreastScreen was relatively constant regardless of tumour size. Overall, use of chemotherapy in women with invasive cancer was low. This probably results from an important impact of screening, that is, the fact that most women diagnosed within BreastScreen have small tumours and are node negative. A high proportion of women received hormonal therapy.

Monitoring quality

While mammography screening is not a perfect screening test, good evidence indicates that it is currently the best available with greater potential to reduce deaths than any other change in breast cancer management. BreastScreen Victoria needs to ensure that the benefits demonstrated in randomised controlled trials of mammography screening can be achieved in routine practice. The information presented in this report reflects the hard work and commitment of people across Victoria who are involved at each stage of the screening process. It is a vital tool for evaluating the success of the Program.

INTRODUCTION

This Statistical Report provides information about BreastScreen Victoria, the Victorian Breast Screening Program, and relates only to women screened in the Victorian Program. It is intended to provide summary data on women who attended for screening during 1997 and the results of their screening. More detailed information about the structure and processes of BreastScreen Victoria can be found in its Annual Reports.

Statistical Reports are produced annually and present comparable data so that time trends can be readily identified. Where appropriate, limitations of the data in this report are described. Comparative data from the 1996 Census of Population and Housing and the Estimated Resident Population of Victoria 1997 is provided for some demographic characteristics.

Reference to national accreditation standards¹, where appropriate, is also included. A summary of BreastScreen Victoria's performance against selected standards is given in Appendix 2.

Very sincere thanks are extended to all staff of BreastScreen Victoria without whom the production of this report would not have been possible.

¹ National Program for the Early Detection of Breast Cancer. *National Accreditation Requirements, March 1994*. Canberra: Commonwealth Department of Human Services and Health, 1994.

BREASTSCREEN VICTORIA

Victorian Breast Screening Program

BreastScreen Victoria provides free mammography to asymptomatic women through an organised screening service incorporating recruitment and recall for screening every two years. The Program's aim is to reduce morbidity and mortality associated with breast cancer through early detection.

BreastScreen Victoria is a joint initiative of the Victorian and Commonwealth Governments and is part of BreastScreen Australia. Victoria is serviced by a network of 31 screening centres, eight assessment centres, a relocatable unit and a mobile van. A system of accreditation is in place whereby each service is regularly assessed by an independent team to ensure that national accreditation standards are met.

BreastScreen Victoria is targeted at women aged 50-69 years. Women and their nominated general practitioners are notified of their screening results within two weeks.

Where an abnormality is found on screening, or where women report a suspicious symptom at the screening visit, referral for specialist medical assessment at a BreastScreen Victoria centre provides free assessment to the point of definite diagnosis.

While a doctor's referral is not required to attend the service, BreastScreen Victoria liaises closely with general practitioners.

For further details phone Ms Onella Stagoll on 03 9660 6888.

CHARACTERISTICS OF WOMEN ATTENDING FOR SCREENING

The information in Sections 1.1 to 1.10 (inclusive) comes from a self-completed questionnaire that each woman completes prior to her mammography examination.

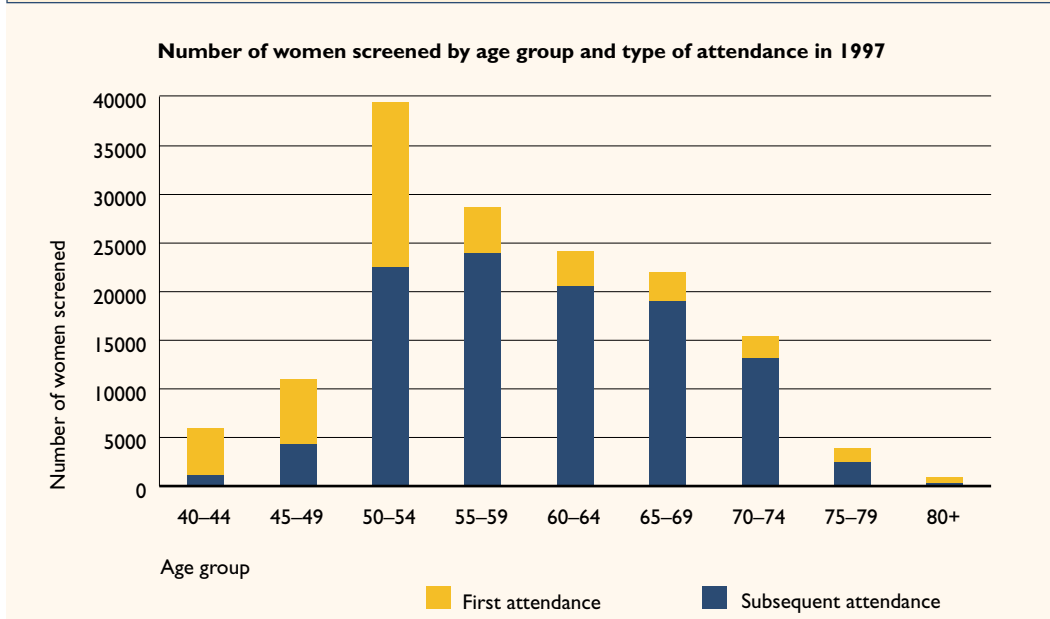
1.1 Type of attendance

This table shows the type of attendance by age group for women who were screened during 1997². Classification of attendance status is based on attendance within BreastScreen Victoria; it is acknowledged that first attenders to BreastScreen may have had previous mammography outside of the Victorian Program.

More than 150,000 women were screened by BreastScreen during 1997. The proportion accounted for by women who have previously attended BreastScreen continues to increase. During 1997, 71.3% of all attenders were subsequent attendances, compared with 56.8% during 1996, 16.5% during 1995 and 7.5% during 1994.

The number of attendances by women aged 40–49 years increased marginally during 1997 to 16,836 compared with 16,063 in 1996.

Type of attendance ³	Age group									Total
	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80+	
First attendance	4667	6567	16874	4625	3538	2918	2148	1387	566	43290
	78.9%	60.1%	43.0%	16.3%	14.7%	13.4%	14.0%	35.6%	55.0%	28.7%
Subsequent attendance	1245	4357	22389	23814	20528	18934	13154	2507	463	107391
	21.1%	39.9%	57.0%	83.7%	85.3%	86.6%	86.0%	64.4%	45.0%	71.3%
Total ⁴	5912	10924	39263	28439	24066	21852	15302	3894	1029	150681
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%



² All data in this Statistical Report excludes three women who attended for screening in 1997 but who were aged less than 40 years.

³ Data in this Statistical Report is classified according to whether the woman's attendance was the first to BreastScreen Victoria or a later attendance. The validity of this approach is higher than using the prevalent/incident round classification of the National Accreditation Requirements which are based on women's self-report about mammography during the previous five years.

⁴ In all tables, percentages may not add to 100% due to rounding errors.

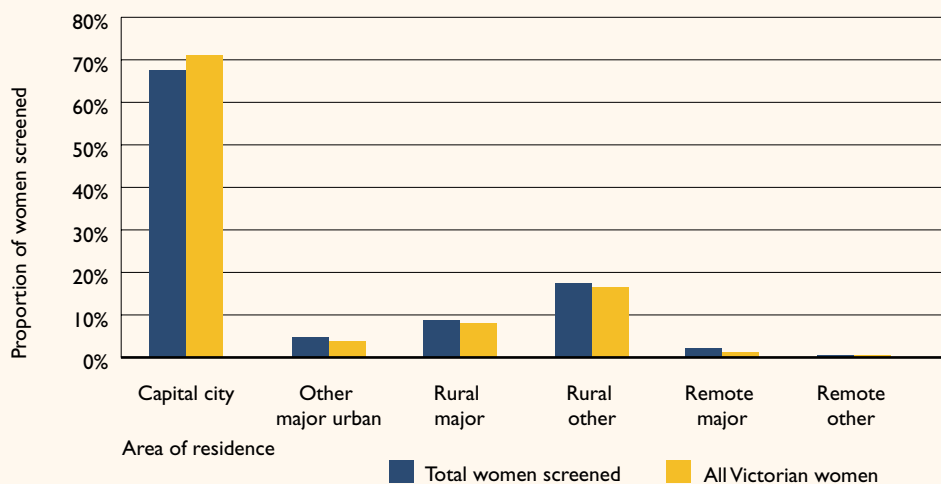
1.2 Area of residence

This table shows the area of residence of the women who attended for screening. Classification of the geographic areas of Victoria is according to the 'Rural/Remote Areas Classification' of the Commonwealth Department of Health and Family Services, January 1994. For comparison, the area of residence for all Victorian women from the 1996 Census is listed⁵.

The geographic distribution of the women screened is very similar to previous years. As in previous years there is a small degree of over-representation within the attenders to BreastScreen of women from outside of the capital city.

Area of residence	Age group									Total	All Victorian women
	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+		
Capital city	3790 64.1%	7479 68.5%	27809 70.8%	19341 68.0%	15983 66.4%	14207 65.0%	10058 65.7%	2411 61.9%	606 58.9%	101684 67.5%	71.0%
Other major urban	222 3.8%	485 4.4%	1561 4.0%	1146 4.0%	1064 4.4%	994 4.5%	772 5.0%	183 4.7%	56 5.4%	6483 4.3%	3.3%
Rural major	449 7.6%	776 7.1%	2935 7.5%	2328 8.2%	2094 8.7%	2023 9.3%	1417 9.3%	366 9.4%	81 7.9%	12469 8.3%	7.9%
Rural other	1108 18.7%	1759 16.1%	6128 15.6%	4902 17.2%	4264 17.7%	4073 18.6%	2616 17.1%	772 19.8%	244 23.7%	25866 17.2%	16.3%
Remote major	209 3.5%	258 2.4%	500 1.3%	417 1.5%	399 1.7%	322 1.5%	246 1.6%	103 2.6%	24 2.3%	2478 1.6%	1.0%
Remote other	78 1.3%	100 0.9%	194 0.5%	168 0.6%	166 0.7%	152 0.7%	127 0.8%	42 1.1%	10 1.0%	1037 0.7%	0.5%
Interstate	56 0.9%	67 0.6%	136 0.3%	137 0.5%	96 0.4%	81 0.4%	66 0.4%	17 0.4%	8 0.8%	664 0.4%	
Total	5912 100%	10924 100%	39263 100%	28439 100%	24066 100%	21852 100%	15302 100%	3894 100%	1029 100%	150681 100%	100%

Proportion of Victorian women screened by area of residence as a comparison to area of residence of all Victorian women



⁵ Australian Bureau of Statistics, *Census of Population and Housing 1996*.

1.3 Area/country of birth

This table shows the area/country of birth by age group for the women who attended for screening in 1997. In the 1996 Census, 62% of the female population of Victoria aged 40 years or more were identified as having been born in Australia.

A detailed listing of country of birth is shown in Appendix 1.

Area/country of birth	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Oceania and Antarctica	11309 67.2%	42842 63.3%	30149 65.7%	13889 72.4%	821 79.8%	99010 65.7%
Australia	11085 65.8%	42167 62.3%	29935 65.2%	13801 71.9%	814 79.1%	97802 64.9%
Europe and former USSR	3594 21.3%	19971 29.5%	13320 29.0%	4597 23.9%	175 17.0%	41657 27.6%
United Kingdom	1194 7.1%	6193 9.1%	3856 8.4%	1665 8.7%	88 8.6%	12996 8.6%
Italy	520 3.1%	3491 5.2%	3129 6.8%	800 4.2%	17 1.7%	7957 5.3%
Greece	287 1.7%	2936 4.3%	1556 3.4%	186 1.0%	3 0.3%	4968 3.3%
South-East Asia	890 5.3%	1676 2.5%	750 1.6%	171 0.9%	5 0.5%	3492 2.3%
Southern Asia	203 1.2%	798 1.2%	458 1.0%	136 0.7%	7 0.7%	1602 1.1%
Mid-East Asia and far North Africa	193 1.1%	692 1.0%	416 0.9%	125 0.7%	4 0.4%	1430 0.9%
North-East Asia	247 1.5%	569 0.8%	343 0.7%	103 0.5%	2 0.2%	1264 0.8%
Africa excluding far North Africa	165 1.0%	503 0.7%	269 0.6%	72 0.4%	6 0.6%	1015 0.7%
The Americas	193 1.1%	569 0.8%	166 0.4%	72 0.4%	7 0.7%	1007 0.7%
Not stated	42 0.2%	82 0.1%	47 0.1%	31 0.2%	2 0.2%	204 0.1%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

I.4 Language spoken at home

This table presents information on the language that is usually spoken at home for the women who were screened. In the 1996 Census, 75% of the Victorian female population aged 40 years or more were identified as speaking only English at home.

Language spoken at home	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Usually English	13709 81.4%	53560 79.1%	36188 78.8%	16500 86.0%	948 92.1%	120905 80.2%
Usually other than English	3127 18.6%	14142 20.9%	9730 21.2%	2696 14.0%	81 7.9%	29776 19.8%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

I.5 Aboriginality

This table shows the number of women who attended for screening and identified themselves as being of Aboriginal or Torres Strait Islander (ATSI) descent. The number is larger than in previous years (168 in 1996, 190 in 1995, 91 in 1994).

In the 1996 Census, 0.2% of the female population of Victoria aged 40 years or more identified themselves as being of ATSI descent.

ATSI descent	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Yes	48 0.3%	110 0.2%	52 0.1%	13 0.1%	1 0.1%	224 0.1%
No	16767 99.6%	67516 99.7%	45785 99.7%	19135 99.7%	1023 99.4%	150226 99.7%
Not stated	21 0.1%	76 0.1%	81 0.2%	48 0.3%	5 0.5%	231 0.2%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

I.6 Symptom status

This table shows the symptom status of the women at the time of screening. The category 'breast lump and/or nipple discharge' includes women reporting a breast lump, or a blood-stained or watery nipple discharge. The category 'other symptoms' includes a variety of symptoms, particularly women with breast pain or tenderness.

Ninety-four percent of women screened reported no breast symptoms at the time of screening. Younger women continue to report symptoms more frequently than older women.

Symptom status	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Breast lump and/or nipple discharge	811 4.8%	1516 2.2%	525 1.1%	228 1.2%	28 2.7%	3108 2.1%
Other breast symptoms	1333 7.9%	2585 3.8%	1328 2.9%	695 3.6%	92 8.9%	6033 4.0%
No breast symptoms	14692 87.3%	63601 93.9%	44065 96.0%	18273 95.2%	909 88.3%	141540 93.9%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

Among the 3,108 women with a breast lump and/or nipple discharge, there were 649 women with symptoms that were considered suspicious for breast cancer and for which recall for assessment was obligatory under the policies of BreastScreen Victoria. This number comprises 505 women with a lump that had been present for less than 12 months which had not been investigated by a medical practitioner, and 144 women with a current blood-stained or watery nipple discharge.

I.7 Family history of breast cancer

In this table, a 'strong family history' is defined as a woman whose mother, sister or daughter was diagnosed with breast cancer before 50 years of age. All other women who nominate one or more family members with breast cancer are classified as 'other family history'.

Women aged 40–49 years are more likely to report a family history than older women.

Family history	Age group					Total
	40–49	50–59	60–69	70–79	80+	
Yes						
• Strong family history	1072 6.4%	1856 2.7%	1463 3.2%	792 4.1%	49 4.8%	5232 3.5%
• Other family history	2951 17.5%	8605 12.7%	5258 11.5%	2240 11.7%	152 14.8%	19206 12.7%
No	12701 75.4%	56855 84.0%	39031 85.0%	16077 83.8%	818 79.5%	125482 83.3%
Not stated	112 0.7%	386 0.6%	166 0.4%	87 0.5%	10 1.0%	761 0.5%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

I.8 Personal history of breast cancer

In general, women with a personal history of breast cancer are discouraged from attending BreastScreen Victoria as it is felt that the screening program may not be suitable for their particular needs. Therefore the data in the following table should not be interpreted as representing the prevalence of breast cancer among the female population of Victoria.

The proportion of attenders nominating a personal history of breast cancer declined to 0.3% in 1997 from 0.5% in 1996. As in earlier years, the proportion of women with a personal history of breast cancer increased with age.

Personal history	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Yes	12 0.1%	95 0.1%	148 0.3%	139 0.7%	34 3.3%	428 0.3%
No	16824 99.9%	67607 99.9%	45770 99.7%	19057 99.3%	995 96.7%	150253 99.7%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

I.9 Breast implant status

This table shows the number of women by age group who nominated that they had breast implants in place at the time of attending for screening. These figures are very similar to those in earlier years.

Breast implant status	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Yes	99 0.6%	457 0.7%	85 0.2%	10 0.1%	1 0.1%	652 0.4%
No	16737 99.4%	67245 99.3%	45833 99.8%	19186 99.9%	1028 99.9%	150029 99.6%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

I.10 Hormone replacement therapy use

This table shows the number of women by age group who nominated that they were taking hormone replacement therapy (HRT) at the time of attending for screening. The figures are very similar to those in 1996.

Twenty-five percent of women attending for screening reported HRT use at the time of screening. HRT use was most prevalent in women aged 50–59 years (34%) and 60–69 years (20.4%).

HRT use	Age group					Total
	40–49	50–59	60–69	70–79	80+	
Yes	3053 18.1%	22989 34.0%	9388 20.4%	1931 10.1%	66 6.4%	37427 24.8%
No	13763 81.7%	44633 65.9%	36456 79.4%	17228 89.7%	961 93.4%	113041 75.0%
Not stated	20 0.1%	80 0.1%	74 0.2%	37 0.2%	2 0.2%	213 0.1%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

I.11 Response to invitations based on the electoral roll

Women in the age range 50–69 years who are listed on the electoral roll and who appear never to have been screened are sent an invitation for screening. If no response is made within one month of this invitation being sent, a second invitation letter is posted.

During 1997, a total of 27,337 women were sent an invitation for screening. A total of 8,755 appointments for screening were made for this group of women, representing a response rate of 32%. It is not certain that all of these appointments were made solely in response to the invitation letter based on the electoral roll; some of the women may have responded to other recruitment initiatives such as newspaper articles or television advertisements.

Of these invitations, 4.5% were returned, unable to be delivered.

1.12 Response to routine rescreen invitations

Women in the age group 50-74 years receive a reminder for rescreening 23 months after their last attendance if no further appointment has been made at the woman's initiative. For women aged 40-49 years, reminders are only sent if there is a strong family history of breast cancer, a personal history of breast cancer or a significant abnormality (defined as lobular carcinoma in situ or atypical ductal hyperplasia). If there is no response within six months, a second reminder letter is posted.

A total of 115,216 women were sent reminder letters for rescreening during 1997. Appointments for rescreening were made for 91,421 of these women, representing a response rate of 79.3%. This response rate is unchanged from earlier years.

Of these invitations, 2.2% were returned, unable to be delivered.

1.13 Rescreen rate

This table shows the proportion of women screened during 1995 who were rescreened by BreastScreen Victoria within 27 months of their previous attendance. The nominated age ranges refer to the ages of the women in 1995.

While the rescreen rate for women aged 50-59 and 60-69 years is very similar to earlier figures, an increase is evident in the rescreen rate among women aged 40-49 years. The rescreen rate of 36.5% for this group in the following table is greater than the rate of 31.8% reported last year.

Rescreen rates ⁶ for women screened from 1 January 1995 to 31 December 1995	Age group				
	40-49	50-59	60-69	70-79	80+
Women screened during 1995	19880	54909	43050	14599	1305
Women rescreened within following 27 months	7265	42625	34154	8080	112
Rescreen rate	36.5%	77.6%	79.3%	55.3%	8.6%

⁶ Rescreen rates correspond to a 'crude' rescreen rate for women screened between 1 January 1995 and 31 December 1995. The table excludes women at high risk who were recommended for annual screening. A woman was counted as 'rescreened within the following 27 months' if she returned to be rescreened within 821 days from the previous 1995 mammogram.

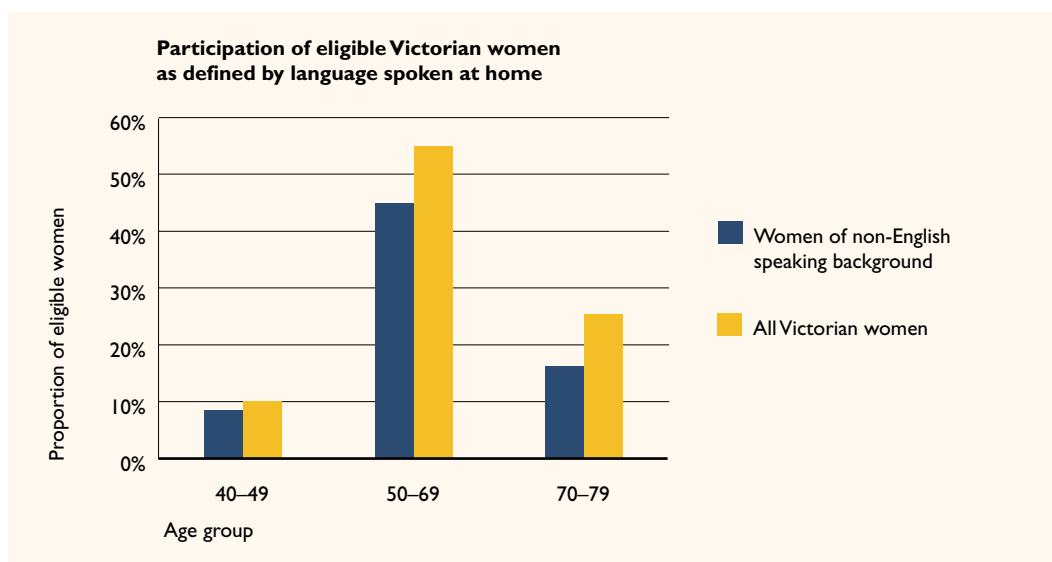
1.14 Participation rates

This table shows the participation rates for all Victorian women during the period 1 January 1996 to 31 December 1997 (a period of 24 months), and participation rates for non-English speaking background (NESB) women for the same period. The screening program is directly targeted at women aged 50–69 years. The participation rate for women aged 50–69 years was 54.9%. This estimate is based on the Estimated Resident Population of Victoria for 1997. This accounts for the apparent drop in participation rates compared with the 1996 Annual Statistical Report when census estimates were used; census estimates have a lower number of residents than Estimated Resident Population figures.

Participation among NESB women aged 50–69 years at 44.8% was lower than among all women but increased from the rate of 41.9% in 1996 and exceeds the relevant national accreditation standard. This estimate of the participation rate among NESB women is still based on the 1996 Census count of the number of NESB women residing in Victoria as the Estimated Resident Population figures are not available specifically for NESB women.

Participation rates 1 January 1996 to 31 December 1997	Age group		
	40–49	50–69	70–79
Estimated number of eligible women resident in Victoria ⁷	325107	415265	148302
Number of women screened	32537	227790	37459
Participation rate	10.0%	54.9%	25.3%
Estimated number of eligible NESB women resident in Victoria ⁸	71489	102495	31781
Number of NESB women screened	5961	45949	5140
Participation rate	8.3%	44.8%	16.2%

The national accreditation standard seeks to maximise the proportion of women aged 50–69 years who are screened, with the aim of screening 70% of this group. The national accreditation standard for participation of women of non-English speaking background in urban areas is at least 50% of the rate for the general population.



⁷ Australian Bureau of Statistics, *Estimated Resident Population 1997*.

⁸ Australian Bureau of Statistics, *Census of Population and Housing 1996*.

The following table shows the participation rates by area (capital city versus other) for all women and for NESB women. The category 'capital city' includes Melbourne and suburbs.

Among all women, participation continues to be lower in the capital city than in the remainder of Victoria in every age group. By contrast, among NESB women participation rates tended to be higher in the capital city.

Participation rates 1 January 1996 to 31 December 1997	Age group		
	40-49	50-69	70-79
All women			
Capital city			
Estimated number of eligible women resident in Victoria ⁹	240921	301091	104777
Number of women screened	22331	158254	25215
Participation rate	9.3%	52.6%	24.1%
Other than capital city			
Estimated number of eligible women resident in Victoria ¹⁰	84186	114174	43525
Number of women screened	10206	69536	12244
Participation rate	12.1%	60.9%	28.1%
NESB women			
Capital city			
Estimated number of eligible NESB women resident in Victoria ¹¹	66029	91831	26450
Number of NESB women screened	5489	41861	3735
Participation rate	8.3%	45.6%	14.1%
Other than capital city			
Estimated number of eligible NESB women resident in Victoria ¹²	5460	10664	5331
Number of NESB women screened	472	4088	664
Participation rate	8.6%	38.3%	12.5%

9 Australian Bureau of Statistics, *Estimated Resident Population 1997*.

10 *ibid.*

11 Australian Bureau of Statistics, *Census of Population and Housing 1996*.

12 *ibid.*

2 RESULTS OF SCREENING

2.1 Number of films

Women who attend for screening generally have two x-rays of each breast, giving a total of four films.

The following table shows the number of women by age group who had four or more films taken or recommended to be taken. ‘Technical reasons’ for additional films include over- and under-exposure of films. ‘Other reasons’ for additional films include large breasts, positioning problems, and breast implants. In previous Annual Statistical Reports, positioning problems were included under ‘Technical reasons’. The change has been made for consistency with the definition of a technical repeat used in national accreditation standards.

Number of women by films taken or recommended to be taken	Age group					Total
	40–49	50–59	60–69	70–79	80+	
Four films	14298 84.9%	56173 83.0%	37444 81.5%	15555 81.0%	840 81.6%	124310 82.5%
More than four films						
• Technical reasons	811 4.8%	3369 5.0%	2134 4.6%	978 5.1%	43 4.2%	7335 4.9%
• Other reasons	1727 10.3%	8160 12.1%	6340 13.8%	2663 13.9%	146 14.2%	19036 12.6%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

The percentage of films taken as technical repeat films is shown in the following table. Overall, 1.4% of all films taken were technical repeat films, with the percentage varying little among women of different age groups.

Technical repeat films	Age group					Total
	40–49	50–59	60–69	70–79	80+	
Films taken	72822	295108	200650	83548	4395	656523
Technical repeat films taken	1095	4392	2668	1241	47	9443
Proportion of technical repeat films	1.5%	1.5%	1.3%	1.5%	1.1%	1.4%

The national accreditation standard requires that less than 3% of **total films taken** are technical repeat films. As distinct from total films, the first table shows the **number of women** who were recommended for more than four films and does not equate to the national accreditation standard for technical repeats.

2.2 Outcome of screening

This table¹³ shows, among first attenders and among subsequent attenders, the number of women within each age group who were recommended for routine rescreening and the number recommended for further assessment. 'Assessment recommended – other' mainly comprises women with breast implants and women with a personal history of breast cancer. It also includes a small number of women who were called back for repeat mammography because of technical reasons but who were not subsequently cleared for routine rescreen, and women with 'other' symptoms (defined as per Section 1.6) but normal mammography. While 9.3% of first attenders have assessment recommended, the comparable figure for subsequent attenders is 4.5%. A greater proportion of women across all age groups were recommended for assessment than in the previous year (first attenders in 1996: 6.9%, subsequent attenders: 3.8%).

Outcome of screening	Age group					Total
	40–49	50–59	60–69	70–79	80+	
First attendance						
Routine rescreen recommended	10149 90.3%	19406 90.3%	5931 91.9%	3268 92.4%	507 89.6%	39261 90.7%
Assessment recommended						
• Abnormal mammography	857 7.6%	1775 8.3%	466 7.2%	251 7.1%	53 9.4%	3402 7.9%
• Symptoms/signs of possible breast cancer	131 1.2%	93 0.4%	27 0.4%	4 0.1%	3 0.5%	258 0.6%
• Abnormal mammography and symptoms/signs	27 0.2%	27 0.1%	11 0.2%	6 0.2%	1 0.2%	72 0.2%
• Other	70 0.6%	198 0.9%	21 0.3%	6 0.2%	2 0.4%	297 0.7%
Subtotal	11234 100%	21499 100%	6456 100%	3535 100%	566 100%	43290 100%
Subsequent attendance						
Routine rescreen recommended	5231 93.4%	43902 95.0%	37908 96.1%	15101 96.4%	441 95.2%	102583 95.5%
Assessment recommended						
• Abnormal mammography	277 4.9%	1861 4.0%	1397 3.5%	524 3.3%	16 3.5%	4075 3.8%
• Symptoms/signs of possible breast cancer	46 1.2%	136 0.4%	60 0.2%	24 0.2%	4 1.3%	270 0.3%
• Abnormal mammography and symptoms/signs	11 0.2%	21 0.0%	16 0.0%	1 0.0%	0 0.0%	49 0.05%
• Other	37 0.7%	282 0.6%	79 0.2%	11 0.1%	2 0.4%	411 0.4%
Subtotal	5602 100%	46202 100%	39460 100%	15661 100%	463 100%	107388 100%

The national accreditation standard is that less than 10% of women screened should be recalled for mammographic assessment at the prevalent round, and less than 5% at the incident round.

¹³ The information in the above table excludes data for three subsequent attenders where the outcome of screening is unknown; these women were requested to return for further films but elected not to attend.

3 RESULTS OF ASSESSMENT

3.1 Types of assessment procedures

This table gives a count of the number of assessment procedures performed within BreastScreen Victoria during 1997. In this first table, an individual woman may be counted in more than one category if she had multiple procedures performed at assessment. A small number of additional assessment procedures are performed outside the screening program; exact numbers of these are unknown and they have been excluded from the following table.

Type of assessment	Number of assessments by age group					Total
	40-49	50-59	60-69	70-79	80+	
Further x-rays	1014 39.0%	3176 40.8%	1661 41.7%	672 41.1%	50 31.6%	6573 40.7%
Ultrasound	612 23.5%	1773 22.8%	829 20.8%	361 22.1%	38 24.1%	3613 22.3%
Clinical examination	585 22.5%	1578 20.3%	784 19.7%	298 18.2%	34 21.5%	3279 20.3%
Biopsy						
• Fine needle aspiration	209 8.0%	585 7.5%	314 7.9%	144 8.8%	22 13.9%	1274 7.9%
• Core biopsy	133 5.1%	506 6.5%	306 7.7%	130 7.9%	11 7.0%	1086 6.7%
• Open biopsy	48 1.8%	165 2.1%	93 2.3%	32 2.0%	3 1.9%	341 ¹⁴ 2.1%
Total number of procedures	2601 100%	7783 100%	3987 100%	1637 100%	158 100%	16166 100%

Compared with 1996, there has been an increased use during 1997 of ultrasound, fine needle aspiration and core biopsy procedures. Correspondingly, the number of open biopsies has decreased.

As in earlier years, core biopsies continued to be the dominant type of tissue biopsy performed, with the proportion of core biopsies increasing to 76% of these investigations compared with 73% in 1996.

Of the 8,834 women who were recommended for assessment (as per Section 2.2), 46 women either declined assessment or failed to attend for assessment, and 389 women were assessed privately. This left 8,399 women to be assessed within the BreastScreen Victoria Program; 39 of these women were cleared for either routine rescreen or early review without investigations being performed.

For the 8,360 women who underwent assessment investigations within BreastScreen Victoria, the next table shows the most 'serious' investigation performed for each woman.

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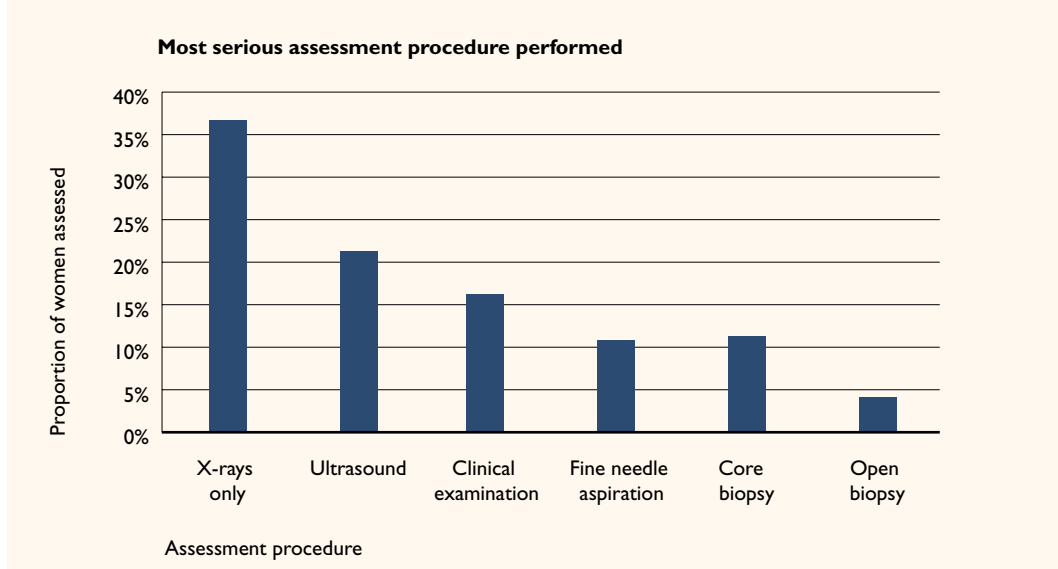
More than one-third of the women (36.5%) received only further x-rays. An additional 21.2% had ultrasound \pm x-rays and 16.1% received clinical examination \pm ultrasound \pm x-rays. Thus 74% of the 8,360 women were able to have their status ascertained without the need for an invasive procedure, namely fine needle aspiration or biopsy.

¹⁴ Of the 341 women who had an open biopsy, 233 (68%) had the procedure performed within the BreastScreen Victoria Program and 108 (32%) had the procedure performed privately.

There was little variation in the type of assessment procedure by age with the exception of women aged 40-49 years who were more likely to have clinical examination and less likely to have core or open biopsy.

These figures are very similar to 1996.

Range of assessment	Number of women by age group					Total
	40-49	50-59	60-69	70-79	80+	
X-rays only	444 32.3%	1493 36.3%	795 39.6%	303 38.2%	16 23.9%	3051 36.5%
Ultrasound ± x-rays	303 22.0%	907 22.0%	379 18.9%	171 21.6%	12 17.9%	1772 21.2%
Clinical examination ± ultrasound ± x-rays	306 22.2%	690 16.8%	269 13.4%	71 9.0%	12 17.9%	1348 16.1%
Fine needle aspiration ± clinical examination ± ultrasound ± x-rays	162 11.8%	426 10.3%	209 10.4%	98 12.4%	14 20.9%	909 10.9%
Core biopsy ± fine needle aspiration ± clinical examination ± ultrasound ± x-rays	113 8.2%	435 10.6%	263 13.1%	118 14.9%	10 14.9%	939 11.2%
Open biopsy ± core biopsy ± fine needle aspiration ± clinical examination ± ultrasound ± x-rays	48 3.5%	165 4.0%	93 4.6%	32 4.0%	3 4.5%	341 ¹⁵ 4.1%
Total	1376 100%	4116 100%	2008 100%	793 100%	67 100%	8360 100%



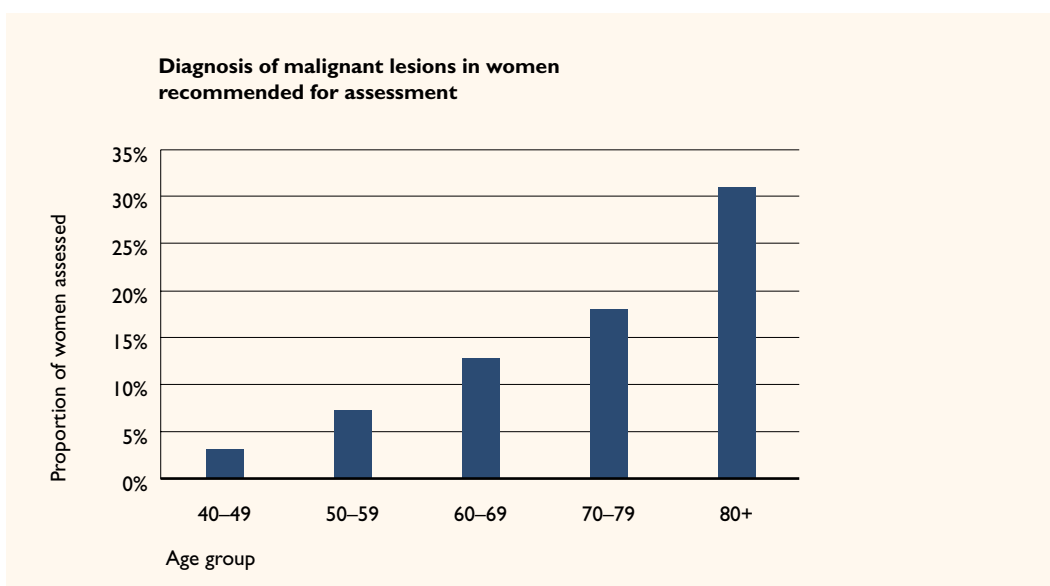
¹⁵ See footnote 14.

3.2 Outcome of assessment

A total of 8,834 women were recommended for assessment for reasons that are listed in Section 2.2. This table shows the final outcome of assessment for each of these women. Where a woman was determined to have multiple lesions, only the most significant of these is counted. 'Malignant lesion' includes a diagnosis of invasive cancer or ductal carcinoma in situ.

Outcome of assessment	Age group					Total
	40-49	50-59	60-69	70-79	80+	
No malignant lesion	1386 95.2%	4008 91.2%	1785 85.9%	668 80.8%	56 69.1%	7903 89.5%
Malignant lesion	48 3.3%	324 7.4%	267 12.9%	150 18.1%	25 30.9%	814 9.2%
Early review	21 1.4%	58 1.3%	22 1.1%	6 0.7%	0 0.0%	107 1.2%
Other	1 0.1%	3 0.1%	3 0.1%	3 0.4%	0 0.0%	10 ¹⁶ 0.1%
Total	1456 100%	4393 100%	2077 100%	827 100%	81 100%	8834 100%

A total of 814 malignant lesions were diagnosed. Among women recommended for assessment, the probability of a malignancy being diagnosed increased with age as shown in the following graph.



3.3 Recommendation for routine rescreening

Of the 150,681 women who attended for screening, 141,844 were recommended for routine rescreening without requiring assessment (see Section 2.2). Of the 8,834 women who were recommended for assessment, the 7,903 women who were assessed as having no malignant lesion were also recommended for routine rescreening (see Section 3.2). Thus a total of 149,747 women were ultimately recommended for routine rescreening.

The table shows the distribution by age group of the recommendations for routine rescreening. The usual recommendation is for routine rescreening at two years. Only 0.4% of the women were advised to return at one year, with older women being more likely to be represented in this category. Reasons for a recommendation for rescreening at one year include a personal history of mastectomy for breast cancer, atypical ductal hyperplasia or lobular carcinoma in situ.

Recommendation for routine rescreen	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Rescreen at 2 years	16732 99.8%	67166 99.8%	45431 99.6%	18878 99.2%	970 96.6%	149177 99.6%
Rescreen at 1 year	34 0.2%	150 0.2%	193 0.4%	159 0.8%	34 3.4%	570 0.4%
Total	16766 100%	67316 100%	45624 100%	19037 100%	1004 100%	149747 100%

4 BREAST CANCER DETECTION RATE

4.1 Breast cancer diagnosis rate

With 814 breast cancers being¹⁷ diagnosed among the 150,681 women who attended for screening in 1997, the crude rate of breast cancer was 5.4 per 1,000 women screened. This crude rate is lower than the rates in earlier years (5.7 per 1,000 in 1996, 6.1 per 1,000 in 1995). This decline is attributable to the increasing proportion of women attending for second or later round screening when fewer cancers are present.

	Age group									Total (95% C.I.) ¹⁸
	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+	
Number of women diagnosed with breast cancer	12	36	169	155	131	136	113	37	25	814
Rate of breast cancer per 1,000 screened women	2.0	3.3	4.3	5.5	5.4	6.2	7.4	9.5	24.3	5.4 (5.0-5.8)

4.2 Breast cancer diagnosis rate by attendance round

This table shows the rate of breast cancer per 1,000 women screened by attendance round, mammographic status, symptom status, and personal history of breast cancer for each 5-year age group. A symptomatic woman is defined as a woman with a breast lump and/or blood-stained or watery nipple discharge. The category 'other breast symptoms' includes a variety of symptoms, most commonly breast pain and tenderness.

Among asymptomatic women with no personal history of breast cancer who were attending BreastScreen Victoria for the first time, the average rate of breast cancer diagnosis was 6.0 per 1,000 attenders. The average rate among asymptomatic subsequent attenders was 4.6 per 1,000 attenders; this rate is higher than 1996 (4.0 per 1,000 attenders) and 1995 (3.2 per 1,000 attenders).

As in previous years, symptomatic women have rates of breast cancer diagnosis that are three to four times higher than asymptomatic women.

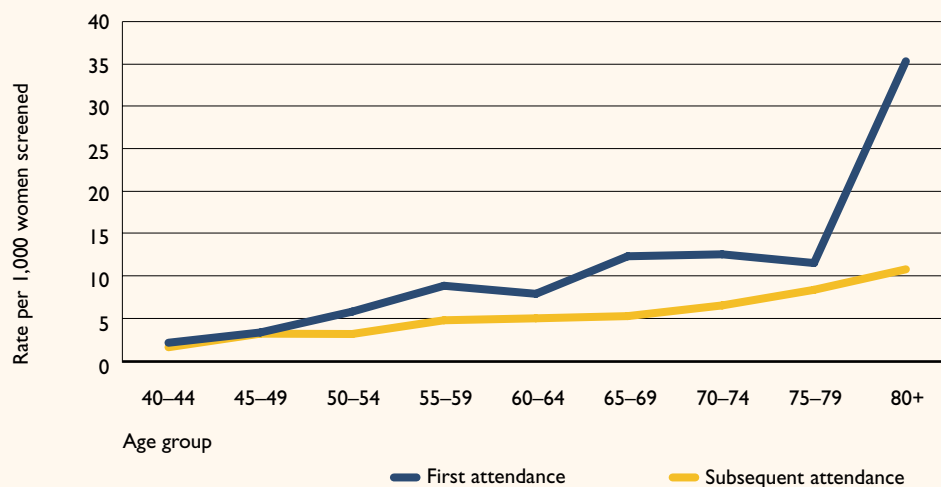
The rate of diagnosis of breast cancer is lower among subsequent attenders because, with only two years on average since their last screening, there is less time for new cancers to develop. These rates of diagnosis of breast cancer fulfil the national accreditation standard that at least five cancers per 1,000 screened women should be detected at the prevalent screening round and at least two cancers per 1,000 screened women at incident screening rounds.

¹⁷ For consistency with BreastScreen Australia the general term 'breast cancer' includes cases of invasive cancer as well as cases of ductal carcinoma in situ.

¹⁸ The 95% confidence interval (C.I.) gives information about the precision of the estimate. A narrow range of values for the 95% confidence interval implies that the estimate is reasonably precise. A wide range of values for the 95% confidence interval indicates that the estimate is not very precise.

Breast cancer detection rate per 1,000 women screened	Age group									Total Av. rate (95% C.I.)
	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80+	
For first attendance										
• Radiographic abnormality; asymptomatic women with no personal history of breast cancer										
Number of cancers	5	17	80	32	20	33	21	13	15	236
Rate per 1,000 women screened	1.3	2.9	5.1	7.5	6.1	12.4	10.9	10.5	32.3	6.0 (5.3–6.8)
• Symptomatic and/or personal history of breast cancer ¹⁹										
Number of cancers	2	4	9	5	5	1	3	2	4	35
Rate per 1,000 women screened	6.9	13.5	16.9	33.6	53.8	11.1	37.0	35.1	97.6	21.5 (14.3–28.6)
• ‘Other breast symptoms’, no personal history of breast cancer and radiographic abnormality										
Number of cancers	3	1	9	4	3	2	3	1	1	27
Rate per 1,000 women screened	6.7	2.0	12.0	17.2	16.9	12.1	21.7	10.3	16.7	10.6 (6.6–14.5)
For subsequent attendance										
• Radiographic abnormality; asymptomatic women with no personal history of breast cancer										
Number of cancers	2	10	61	104	98	92	80	20	3	470
Rate per 1,000 women screened	1.9	2.6	2.9	4.6	5.0	5.0	6.3	8.5	7.2	4.6 (4.2–5.0)
• Symptomatic and/or personal history of breast cancer ¹⁹										
Number of cancers	0	2	6	6	4	5	3	1	2	29
Rate per 1,000 women screened	0.0	11.6	11.4	15.2	14.8	23.0	17.2	18.9	100.0	15.3 (9.7–20.9)
• ‘Other breast symptoms’, no personal history of breast cancer and radiographic abnormality										
Number of cancers	0	2	4	4	1	3	3	0	0	17
Rate per 1,000 women screened	0.0	7.0	4.8	5.2	1.8	6.8	8.7	0.0	0.0	4.9 (2.6–7.2)

Rate of breast cancer diagnosed in first and subsequent attenders per 1,000 women screened



¹⁹ These women may or may not have had a radiographic abnormality.

4.3 Size of breast cancer

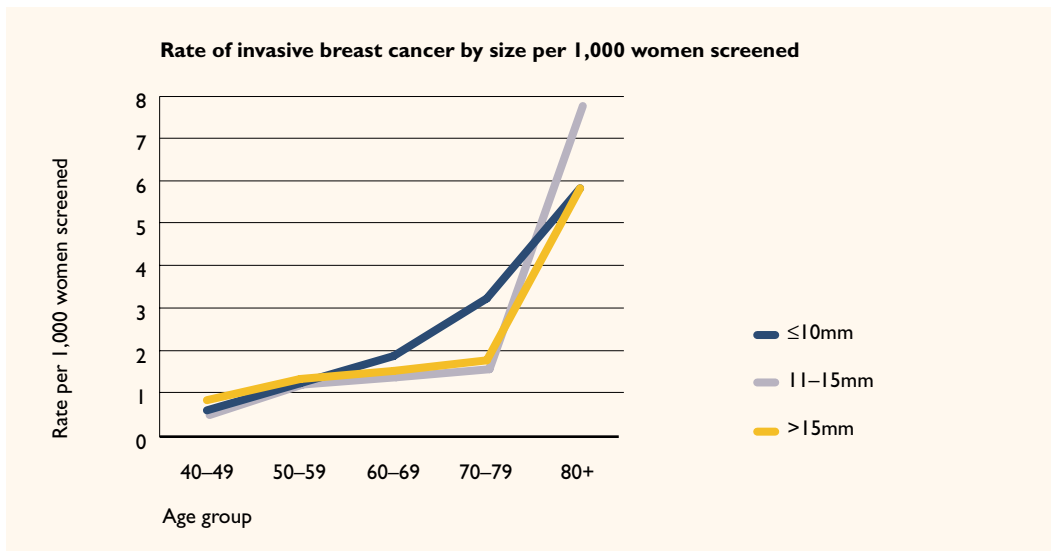
These tables show the number and rate of breast cancer diagnosis by size of tumour for each 10-year age group and by attendance round. This information is only presented for invasive breast cancers as dimensions of ductal carcinoma in situ are usually not given.

Among first round attenders, 30% of the cancers were 10mm or less in diameter and 52% were 15mm or less in diameter. Among subsequent attenders, the proportions were much higher with 40% of the cancers being 10mm or less in diameter and 71% being 15mm or less in diameter. A small diameter tumour is generally predictive of an improved prognosis.

Breast cancer detection rate by size of invasive breast cancer	Age group					Total Av. rate (95% C.I.)
	40-49	50-59	60-69	70-79	80+	
First attendance						
• 10mm or less						
Number of cancers	8	32	13	14	6	73
	34.8%	29.1%	23.2%	35.9%	33.3%	29.7%
Rate per 1,000 women screened	0.71	1.49	2.01	3.96	10.60	1.69 (1.30-2.07)
• 11mm to 15mm						
Number of cancers	5	26	11	9	5	56
	21.7%	23.6%	19.6%	23.1%	27.8%	22.8%
Rate per 1,000 women screened	0.45	1.21	1.70	2.55	8.83	1.29 (0.95-1.63)
• More than 15mm						
Number of cancers	8	47	29	14	5	103
	34.8%	42.7%	51.8%	35.9%	27.8%	41.9%
Rate per 1,000 women screened	0.71	2.19	4.49	3.96	8.83	2.38 (1.92-2.84)
• Unknown						
Number of cancers	2	5	3	2	2	14
	8.7%	4.5%	5.4%	5.1%	11.1%	5.7%
Rate per 1,000 women screened	0.18	0.23	0.46	0.57	3.53	0.32 (0.15-0.49)
Subtotal						
Number of cancers	23	110	56	39	18	246
	100%	100%	100%	100%	100%	100%
Rate per 1,000 women screened	2.05	5.12	8.67	11.03	31.80	5.68 (4.97-6.39)

Breast cancer detection rate by size of invasive breast cancer	Age group					Total Av. rate (95% C.I.)
	40–49	50–59	60–69	70–79	80+	
Subsequent attendance						
• 10mm or less						
Number of cancers	2	51	73	48	0	174
	15.4%	32.7%	42.9%	52.7%	0.0%	40.0%
Rate per 1,000 women screened	0.36	1.10	1.85	3.06	0.00	1.62 (1.38–1.86)
• 11mm to 15mm						
Number of cancers	3	55	52	21	3	134
	23.1%	35.3%	30.6%	23.1%	60.0%	30.8%
Rate per 1,000 women screened	0.54	1.19	1.32	1.34	6.48	1.25 (1.04–1.46)
• More than 15mm						
Number of cancers	6	43	41	20	1	111
	46.2%	27.6%	24.1%	22.0%	20.0%	25.5%
Rate per 1,000 women screened	1.07	0.93	1.04	1.28	2.16	1.03 (0.84–1.23)
• Unknown						
Number of cancers	2	7	4	2	1	16
	15.4%	4.5%	2.4%	2.2%	20.0%	3.7%
Rate per 1,000 women screened	0.36	0.15	0.10	0.13	2.16	0.15 (0.08–0.22)
Subtotal						
Number of cancers	13	156	170	91	5	435
	100%	100%	100%	100%	100%	100%
Rate per 1,000 women screened	2.32	3.38	4.31	5.81	10.80	4.05 (3.67–4.43)
Total						
Number of invasive cancers	36	266	226	130	23	681
	100%	100%	100%	100%	100%	100%
Rate per 1,000 women screened	2.14	3.93	4.92	6.77	22.35	4.52 (4.18–4.86)

The national accreditation standard is that at least 0.8 cancers per 1,000 women screened have a diameter of 10mm or less.



The following table shows information about the size of the invasive breast cancer according to whether or not the tumour was palpable on clinical examination. Fifty-four percent of tumours were non-palpable. As the size of the cancers increased, a greater proportion were palpable. While 18% of the tumours with a diameter of 10mm or less were palpable, this figure increased to 40% if the diameter was 11 to 15mm, and to 65% if the diameter was more than 15mm.

Invasive tumour size by palpable status	Palpable	Not palpable	Unknown	Total
10mm or less	45 18.2%	193 78.1%	9 3.6%	247 100%
11mm to 15mm	76 40.0%	104 54.7%	10 5.3%	190 100%
More than 15mm	138 64.5%	59 27.6%	17 7.9%	214 100%
Unknown	14 46.7%	12 40.0%	4 13.3%	30 100%
Total	273 40.1%	368 54.0%	40 5.9%	681 100%

4.4 Histologic type of breast cancer

Of the 814 cases of breast cancer diagnosed, 681 (84%) were diagnosed at an invasive stage and 133 (16%) as ductal carcinoma in situ (DCIS).

Of the 298 cases of breast cancer among first attenders, 83% were invasive in nature; 17% were diagnosed as DCIS. Among subsequent attenders, 84% of the 516 cases were invasive in nature; 16% were DCIS.

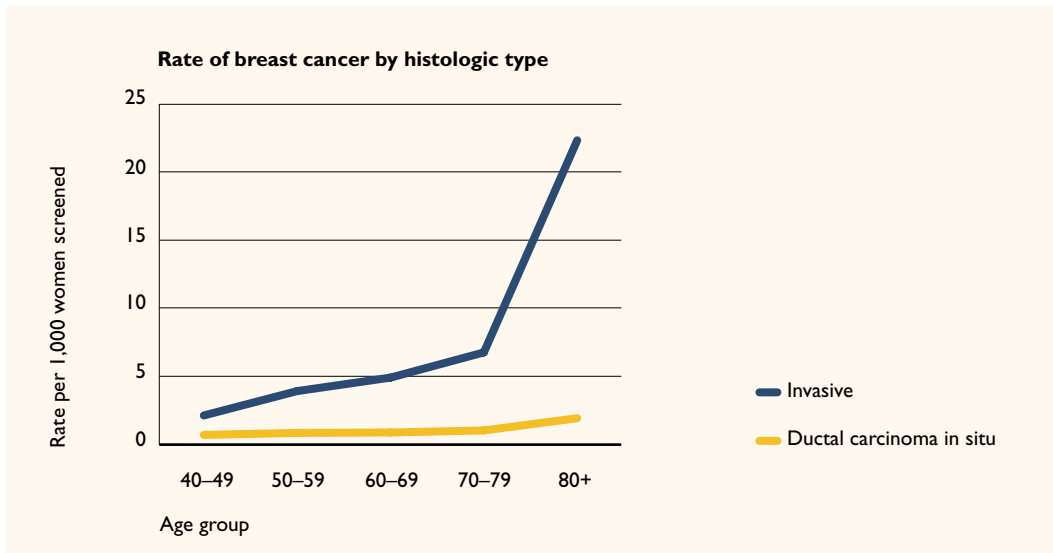
This table shows the number and rate of breast cancer diagnosis by type for each 10-year age group.

Breast cancer detection rate by histologic type per 1,000 women screened	Age group					Total Av. rate (95% C.I.)
	40–49	50–59	60–69	70–79	80+	
For first attendance						
• Invasive						
Number of cancers	23	110	56	39	18	246
Rate per 1,000 women screened	2.05	5.12	8.67	11.03	31.80	5.68 (4.97–6.39)
• Ductal carcinoma in situ						
Number of cancers	9	29	8	4	2	52
Rate per 1,000 women screened	0.80	1.35	1.24	1.13	3.53	1.20 (0.87–1.53)
For subsequent attendance						
• Invasive						
Number of cancers	13	156	170	91	5	435
Rate per 1,000 women screened	2.32	3.38	4.31	5.81	10.80	4.05 (3.67–4.43)
• Ductal carcinoma in situ						
Number of cancers	3	29	33	16	0	81
Rate per 1,000 women screened	0.54	0.63	0.84	1.02	0.00	0.75 (0.59–0.92)
Total						
Number of cancers	48	324	267	150	25	814
Rate per 1,000 women screened	2.85	4.79	5.81	7.81	24.30	5.40 (5.03–5.77)

The national accreditation standard is that 10–20% of the cancers that are detected should be ductal carcinoma in situ.

Among the 133 cases of ductal carcinoma in situ that were diagnosed, 81 (61%) were classified as high grade, 24 (18%) as intermediate grade, 25 (19%) as low grade and three were of unknown grade.

Seventy-eight (59%) of the cases of ductal carcinoma in situ were classified as comedo DCIS, 33 (25%) as non-comedo DCIS, 20 (15%) as mixed DCIS and two (2%) as other forms of DCIS.



This table shows the frequency of diagnosis of the various types of invasive breast cancer by size. The distribution is very similar to that reported in previous years.

Invasive breast cancer diagnosis by histologic type	0-10mm	11-15mm	>15mm	Unknown	Total
Invasive duct carcinoma not otherwise stated	194 38.0%	139 27.2%	155 30.3%	23 4.5%	511 100%
Lobular classical carcinoma	19 23.5%	22 27.2%	35 43.2%	5 6.2%	81 100%
Mixed ductal/lobular carcinoma	10 29.4%	11 32.4%	12 35.3%	1 2.9%	34 100%
Tubular carcinoma	15 65.2%	5 21.7%	3 13.0%	0 0.0%	23 100%
Lobular variant carcinoma	3 27.3%	4 36.4%	4 36.4%	0 0.0%	11 100%
Mucinous carcinoma	4 36.4%	5 45.5%	2 18.2%	0 0.0%	11 100%
Other	2 20.0%	4 40.0%	3 30.0%	1 10.0%	10 100%
Total	247 36.3%	190 27.9%	214 31.4%	30 4.4%	681 100%

4.5 Interval cancer rate

Interval cancers are cases of invasive breast cancer or ductal carcinoma in situ (DCIS) that are not diagnosed as a result of attending for screening but which are diagnosed during the time interval until the next screening attendance was recommended; this period is usually 24 months.

The following points are relevant to the interval cancer rates that are presented in this section:

- The interval cancer rates in the table relate to women who were first round attenders at BreastScreen Victoria during 1995²⁰.
- Separate rates are presented for three groups of women:
 - women who were asymptomatic at the time of their 1995 screening;
 - women who indicated ‘other’ breast symptoms at the time of their 1995 screening;
 - women who indicated a breast lump and/or a blood-stained or watery nipple discharge at the time of their 1995 screening (see Section 1.6).

These rates are presented separately as it is expected that the interval cancer rate will differ between symptomatic and asymptomatic women at the time of screening.

For the purpose of defining interval cancers the following distinctions were made:

- Cancers that were diagnosed among women who were recommended for early review were not counted as interval cancers unless the woman had been cleared for routine rescreening or more than 12 months had elapsed from the date of the first attendance in 1995, whichever was earlier. While women are under early review, they technically have not completed their screening episode. Therefore in general they are ineligible to be counted as an interval cancer should a cancer be diagnosed during this period. As the National Accreditation Requirements state that the screening episode should be completed within six months, in this report cancers diagnosed when review extends beyond 12 months are regarded as interval cancers.
- If a woman was rescreened by BreastScreen Victoria between 21 and 24 months after the 1995 screening and declared at the time of the second screening that she currently had a breast lump and/or a blood-stained or watery nipple discharge and a cancer was diagnosed at this second screening, then this cancer was classified as an interval cancer. Implicit in this definition is the assumption that although the woman was attending for screening an interval cancer was already present.

Using this approach, a total of 240 interval cancers were identified among the first round attenders in 1995. This number comprises 230 women with invasive breast cancer and 10 women with DCIS. Of the 230 invasive breast cancers, 78 were diagnosed during the first year and 152 during the second year. Of the 10 cases of DCIS, two were diagnosed in the first year and eight during the second year.

The following table shows the interval cancer rate for the three groups of women during the first and second years after their 1995 screening. Among asymptomatic women, the interval cancer rate during the second year after screening was more than double that found during the first year after screening.

²⁰ Measurement of interval cancer rates is made possible by the generous assistance of the staff of the Cancer Epidemiology Centre at the Anti-Cancer Council of Victoria.

Interval cancer rate in first attenders during 1995 per 10,000 women screened	Age group					Total Av. rate (95% C.I.)
	40-49	50-59	60-69	70-79	80+	
Year 1						
• Asymptomatic women						
Number of women screened	15025	40719	32015	10690	1039	99488
Number of cancers	9	30	15	1	1	56
Rate per 10,000 women screened	5.99	7.37	4.69	0.94	9.62	5.63 (4.2-7.1)
• Symptoms – ‘other’						
Number of women screened	2096	3078	1916	878	143	8111
Number of cancers	2	5	1	2	0	10
Rate per 10,000 women screened	9.54	16.24	5.22	22.78	0.00	12.33 (4.7-20.0)
• Symptoms – lump or discharge						
Number of women screened	1034	1110	458	138	36	2776
Number of cancers	5	1	6	0	2	14
Rate per 10,000 women screened	48.36	9.01	131.00	0.00	555.56	50.43 (24.0-76.9)
Year 2						
• Asymptomatic women						
Number of women screened	15009	40651	31961	10668	1033	99322
Number of cancers	17	56	44	21	0	138
Rate per 10,000 women screened	11.33	13.78	13.77	19.69	0.00	13.89 (11.6-16.2)
• Symptoms – ‘other’						
Number of women screened	2093	3069	1913	874	143	8092
Number of cancers	2	5	2	0	1	10
Rate per 10,000 women screened	9.56	16.29	10.45	0.00	69.93	12.36 (4.7-20.0)
• Symptoms – lump or discharge						
Number of women screened	1027	1107	451	137	34	2756
Number of cancers	3	8	1	0	0	12
Rate per 10,000 women screened	29.21	72.27	22.17	0.00	0.00	43.54 (18.9-68.2)

The national accreditation standard is that less than 6 per 10,000 screened women develop cancer (including DCIS but excluding LCIS) in the 12 months following screening.

Among asymptomatic first round attenders aged 50-69 years in 1995, 45 cancers were diagnosed during the first 12 months after screening giving an interval cancer rate of 6.19 cancers per 10,000 women (95% C.I. 4.4-8.0). During the second year after the 1995 screening, 100 cancers were diagnosed among asymptomatic first round attenders aged 50-69 years giving an interval cancer rate of 13.77 cancers per 10,000 women (95% C.I. 11.1-16.5).

5 BREAST CANCER CHARACTERISTICS AND TREATMENT

5.1 Nodal status

Eighty-eight percent of the 681 women diagnosed with invasive breast cancer underwent axillary node dissection. The comparable figure for 1996 was 92%. The following table shows the nodal status by tumour type and size.

Among the women who had an axillary node dissection, nodes were positive for 5% of the women whose breast cancer was 10mm or less in diameter, 24% of the women whose breast cancer was 11-15mm in diameter, and 41% of the women whose breast cancer was more than 15mm in diameter. Corresponding proportions in 1996 were 12%, 18% and 41%.

Twelve percent of the 681 women diagnosed with invasive breast cancer did not undergo axillary node dissection, compared with 8% in 1996.

Twenty percent of the 133 women diagnosed with ductal carcinoma in situ (DCIS) underwent axillary node dissection, compared with 22% in 1996. As in 1996, none of these women were found to have positive nodes.

Nodes	Invasive				Invasive total	DCIS	Total
	0-10mm	11-15mm	>15mm	unknown			
No dissection	45	12	11	11	79	107	186
Dissection performed							
• No nodes positive	191 94.6%	136 76.4%	119 58.6%	10 52.6%	456 75.7%	26 100.0%	482 76.8%
• Nodes positive	11 5.4%	42 23.6%	84 41.4%	9 47.4%	146 24.3%	0 0.0%	146 23.2%
Subtotal	202 100%	178 100%	203 100%	19 100%	602 100%	26 100%	628 100%

Among women whose breast cancer was more than 10mm in diameter and who underwent an axillary node dissection, 40% of the women with clinically palpable tumours had positive nodes compared with 25% of the women with impalpable tumours.

Palpable status by nodal status	0-10mm	Invasive >10mm	unknown	Total
Palpable				
No dissection	5	13	7	25
Dissection performed				
• No nodes positive	39 97.5%	121 60.2%	2 28.6%	162 65.3%
• Nodes positive	1 2.5%	80 39.8%	5 71.4%	86 34.7%
Subtotal	40 100%	201 100%	7 100%	248 100%
Not palpable				
No dissection	39	10	3	52
Dissection performed				
• No nodes positive	144 93.5%	115 75.2%	6 66.7%	265 83.9%
• Nodes positive	10 6.5%	38 24.8%	3 33.3%	51 16.1%
Subtotal	154 100%	153 100%	9 100%	316 100%

5.2 Tumour grade

Ninety-two percent of the women with invasive breast cancer had their tumour grade classified. The following table shows the grade by tumour size. Regardless of tumour diameter, the greatest proportion of tumours were moderately differentiated.

Among tumours that were 10mm or less in diameter, 50% were moderately differentiated compared with 38% in 1996; 9% were poorly differentiated compared with 17% in the previous year.

Tumour grades	Invasive				Total
	0-10mm	11-15mm	>15mm	unknown	
Grades unknown	19	8	19	11	57
Grades known					
• Well differentiated	92 40.4%	66 36.3%	34 17.4%	7 36.8%	199 31.9%
• Moderately differentiated	115 50.4%	88 48.4%	92 47.2%	8 42.1%	303 48.6%
• Poorly differentiated	21 9.2%	28 15.4%	69 35.4%	4 21.1%	122 19.6%
Subtotal	228 100%	182 100%	195 100%	19 100%	624 100%

5.3 Type of treatment

Treatment details were recorded for 99% of the women who were diagnosed with invasive breast cancer. Twenty-six percent of these women underwent a mastectomy, compared with 35% in 1996. Women with tumours greater than 15mm in diameter were more than twice as likely to undergo a mastectomy than women whose tumours were 10mm or less in diameter. Seventy-four percent of women with invasive breast cancer had breast conserving surgery compared with 65% in 1996.

Treatment details were recorded for 100% of the women who were diagnosed with ductal carcinoma in situ (DCIS). Twenty-two percent of these women underwent a mastectomy compared with 30% in 1996.

Treatment	Invasive			unknown	Invasive total	DCIS	Total
	0-10mm	11-15mm	>15mm				
Unknown	2 0.8%	1 0.5%	3 1.4%	1 3.4%	7 1.0%	0 0.0%	7 0.9%
Information available							
• No surgery	1 0.4%	0 0.0%	0 0.0%	9 31.0%	10 1.5%	2 1.5%	12 1.5%
• Local diagnostic excision	8 3.3%	7 3.7%	3 1.4%	1 3.4%	19 2.8%	25 18.8%	44 5.5%
• Wide local excision	197 80.4%	138 73.0%	124 58.8%	11 37.9%	470 69.7%	77 57.9%	547 67.8%
• Mastectomy	39 15.9%	44 23.3%	84 39.8%	8 27.6%	175 26.0%	29 21.8%	204 25.3%
Subtotal	245 100%	189 100%	211 100%	29 100%	674 100%	133 100%	807 100%

Information about the use of adjuvant therapy was available for 94% of the 814 women who were diagnosed with breast cancer.

Of the women with known information, almost 80% of women with breast cancer received some type of adjuvant therapy. Among women with invasive breast cancer, 90% received adjuvant therapy; just over one-quarter of the women with DCIS received adjuvant therapy.

The following table shows the range of adjuvant therapy used by women with invasive breast cancer of known size.

Adjuvant therapy	0-10mm	Invasive 11-15mm	>15mm
Unknown	8	15	15
Information available			
• No adjuvant therapy	35 14.6%	16 9.2%	9 4.5%
• Radiotherapy only	39 16.3%	28 16.1%	20 10.1%
• Chemotherapy only	4 1.7%	7 4.0%	24 12.1%
• Hormonal therapy only	82 34.3%	42 24.1%	54 27.1%
• Radiotherapy & hormonal therapy	70 29.3%	53 30.5%	36 18.1%
• Radiotherapy & chemotherapy	4 1.7%	18 10.3%	32 16.1%
• Chemotherapy & hormonal therapy	1 0.4%	6 3.4%	13 6.5%
• Radiotherapy & chemotherapy & hormonal therapy	4 1.7%	4 2.3%	11 5.5%
Subtotal	239 100%	174 100%	199 100%

Among the 33 women with DCIS known to have received adjuvant therapy, 13 women received radiotherapy, 11 women received hormonal therapy, four women received both radiotherapy and hormonal therapy, one woman received radiotherapy and chemotherapy, and four women received other therapies.

The next table shows systemic adjuvant therapy for women with invasive breast cancer by nodal status and age group. The age groups given are used to approximate menopausal status; 50 years or less for pre-menopause and more than 50 years for post-menopause.

Information is available about the use of systemic adjuvant therapy for 93% of women diagnosed with invasive breast cancer and known nodal status. Among these, almost all women with node positive breast cancer had some form of systemic adjuvant therapy (100% of women aged 50 years or less and 96% of those over 50 years). Most women with node negative cancer also had systemic therapy (77% of younger and 90% of older women).

Systemic adjuvant therapy	Invasive			
	Nodes positive		Nodes negative	
	≤50 years	>50 years	≤50 years	>50 years
Unknown	1	12	3	21
Information available				
• No systemic therapy	0 0.0%	5 4.5%	6 23.1%	34 10.5%
• Chemotherapy only ²¹	10 62.5%	44 40.0%	6 23.1%	34 10.5%
• Hormonal therapy only ²¹	0 0.0%	39 35.5%	13 50.0%	247 76.0%
• Chemotherapy & hormonal therapy ²¹	6 37.5%	22 20.0%	1 3.8%	10 3.1%
Subtotal	16 100%	110 100%	26 100%	325 100%

21 These women may or may not have had radiotherapy in addition to systemic therapy.

APPENDIX I

Additional information about country of birth for attenders to BreastScreen Victoria

Country of birth	Age group					Total
	40–49	50–59	60–69	70–79	80+	
Australia	11085 65.8%	42167 62.3%	29935 65.2%	13801 71.9%	814 79.1%	97802 64.9%
United Kingdom	1194 7.1%	6193 9.1%	3856 8.4%	1665 8.7%	88 8.6%	12996 8.6%
Italy	520 3.1%	3491 5.2%	3129 6.8%	800 4.2%	17 1.7%	7957 5.3%
Greece	287 1.7%	2936 4.3%	1556 3.4%	186 1.0%	3 0.3%	4968 3.3%
The former Yugoslavia	332 2.0%	1652 2.4%	1046 2.3%	196 1.0%	2 0.2%	3228 2.1%
Germany	169 1.0%	1081 1.6%	766 1.7%	327 1.7%	13 1.3%	2356 1.6%
Netherlands	200 1.2%	1031 1.5%	656 1.4%	253 1.3%	8 0.8%	2148 1.4%
Malta	256 1.5%	989 1.5%	461 1.0%	103 0.5%	0 0.0%	1809 1.2%
Vietnam	406 2.4%	616 0.9%	354 0.8%	75 0.4%	2 0.2%	1453 1.0%
Poland	110 0.7%	379 0.6%	338 0.7%	343 1.8%	13 1.3%	1183 0.8%
New Zealand	194 1.2%	556 0.8%	181 0.4%	80 0.4%	6 0.6%	1017 0.7%
India	103 0.6%	397 0.6%	216 0.5%	71 0.4%	4 0.4%	791 0.5%
China	100 0.6%	363 0.5%	247 0.5%	76 0.4%	2 0.2%	788 0.5%
Sri Lanka	80 0.5%	375 0.6%	231 0.5%	61 0.3%	3 0.3%	750 0.5%
Egypt	79 0.5%	342 0.5%	241 0.5%	75 0.4%	4 0.4%	741 0.5%

Country of birth	Age group					Total
	40-49	50-59	60-69	70-79	80+	
Malaysia	182 1.1%	366 0.5%	127 0.3%	26 0.1%	2 0.2%	703 0.5%
Republic of Ireland	61 0.4%	261 0.4%	193 0.4%	77 0.4%	5 0.5%	597 0.4%
Cyprus	66 0.4%	275 0.4%	173 0.4%	37 0.2%	0 0.0%	551 0.4%
Turkey	152 0.9%	294 0.4%	76 0.2%	22 0.1%	0 0.0%	544 0.4%
Hungary	36 0.2%	221 0.3%	194 0.4%	87 0.5%	5 0.5%	543 0.4%
Other	1224 7.3%	3717 5.5%	1942 4.2%	835 4.3%	38 3.7%	7756 5.1%
Total	16836 100%	67702 100%	45918 100%	19196 100%	1029 100%	150681 100%

APPENDIX 2

Performance against national accreditation standards in 1997

Minimum standards and requirements are in place for accredited services operating within BreastScreen Australia. Notwithstanding present limitations of the data, this table summarises the performance of BreastScreen Victoria for a selection of standards measurable using the information in this report.

Standard	Performance objective	Minimum standard	BreastScreen Victoria
1.2	To maximise the number of women screened who are aged 50–69 with the aim of screening 70% of this group.	Participation by 60% of the target group (50–69) after five years in the Program ²² .	54.9% of eligible Victorian women aged 50–69 years were screened during the 24 months from 1 January 1996 to 31 December 1997.
1.3	To maximise participation by women of non-English speaking background.	Participation for women of non-English speaking background in urban areas will be at least 50% of the rate for the general population.	Participation for women aged 50–69 years of non-English speaking background across Victoria was 81.6% of the rate for all Victorian women.
2.9	To minimise the number of women recalled for mammographic assessment.	Assessment recalls <10% of women screened at prevalent round and <5% at incident rounds.	Assessment was recommended for 9.3% of women attending for first screens and 4.5% of subsequent attenders. If confined to women recommended for assessment on the basis of abnormal mammography, the percentages are 8.1% for first attenders and 3.8% for subsequent attenders ²³ .
2.23	To maximise the number of cancers detected.	>5 cancers per 1,000 screened women should be detected at the prevalent screening round. At incident rounds, at least 2 cancers per 1,000 screened women should be detected.	The average rate of breast cancer diagnosis ²⁴ was 6.0 per 1,000 among first attenders and 4.6 per 1,000 among subsequent attenders ²³ .
2.24	To maximise the number of minimal invasive cancers detected.	>0.8 cancers per 1,000 screened women will have a diameter of ≤10mm.	The average rate of cancers 10mm or less in diameter was 1.64 per 1,000 women screened.
2.25	To detect a representative proportion of ductal carcinoma in situ (DCIS) at the prevalent screening round.	10–20% of cancers detected will be DCIS.	17% of cancers detected in first attenders were DCIS ²³ .
2.26	To minimise the number of interval cancers.	<6 per 10,000 screened women develop breast cancer (including DCIS but excluding LCIS) in the 12 months following screening ²³ .	Average rate of interval cancers among first attenders in 1995 aged 50–69 years was 7.31 per 10,000 women screened during the first 12 months after screening ²⁵ .

22 This standard applies only to screening and assessment services established for five years and granted full accreditation. In 1997 only two BreastScreen Victoria services had been operating for five years.

23 Data by prevalent and incident screening round, as distinct from first and subsequent attendance, are not utilised in this publication.

24 Rates given are for asymptomatic women with no personal history of breast cancer.

25 This rate is given for all women screened, asymptomatic and symptomatic at the time of screening.

APPENDIX 3

National and international comparisons

Participation rate

Participation rates for each State and Territory for the period 1 January 1996 to 31 December 1997 have been published by the Australian Institute of Health and Welfare (AIHW)²⁶.

The methodology in the AIHW report differs from that used in this Annual Statistical Report. For the AIHW report, the number of women eligible for screening (the denominator of the participation rate) was calculated from the average of the 1996 and 1997 Estimated Resident Populations; by contrast, this Annual Statistical Report uses the 1997 Estimated Resident Population data. For the AIHW report, the number of Victorian women screened (the numerator of the participation rate) was the aggregate count of Victorian women screened, regardless of the location of the screening; by contrast, this Annual Statistical Report uses only information about women resident in Victoria who were screened by BreastScreen Victoria.

In the AIHW publication, the participation rate for Victorian women aged 50–69 years was 54.5% compared with a national average of 52.2%. Among the eight States and Territories, Victoria ranked third with higher participation rates being listed for the Australian Capital Territory (57.1%) and South Australia (56.4%).

Detection rate for breast cancer

From the AIHW report, the following rates of diagnosis of breast cancer among women aged 50–69 years can be determined. These rates may vary between States and Territories depending on the local policy about screening symptomatic women.

State/Territory	Breast cancer detection rate per 1,000 women screened aged 50–69 years	95% C.I.
Victoria	4.33	(3.95–4.71)
New South Wales	3.61	(3.32–3.91)
Queensland	4.11	(3.64–4.57)
Western Australia	3.75	(3.17–4.33)
South Australia	4.47	(3.84–5.11)
Tasmania	1.95	(1.17–2.73)
Australian Capital Territory	4.52	(3.00–6.04)
Northern Territory	3.48	(1.21–5.76)

In the United Kingdom, the cancer detection rate for the 12 months ending 31 March 1997 was 5.63 per 1,000 women screened²⁷. This figure is not directly comparable with Australian figures because of policy differences between the two countries on matters such as the target age range, the rescreening interval, the screening of symptomatic women, and because of different proportions of first and subsequent round attenders.

Detection rate for small breast cancers

The detection rate for small breast cancers (10mm or less) as published by AIHW is shown in the next table.

State/Territory	Small invasive breast cancer detection rate per 1,000 women screened aged 50–69 years	95% C.I.
Victoria	1.49	(1.26–1.71)
New South Wales	1.52	(1.33–1.71)
Queensland	1.34	(1.07–1.60)
Western Australia	1.26	(0.93–1.60)
South Australia	1.66	(1.28–2.05)
Tasmania	0.32	(0.01–0.64)
Australian Capital Territory	1.20	(0.41–1.98)
Northern Territory	2.32	(0.46–4.18)

27 Department of Health, *NHS Breast Screening Programme 98 Review*, 1998.

APPENDIX 4

Staff of BreastScreen Victoria

SCREENING AND ASSESSMENT CENTRES

Bendigo Regional BreastScreen

Director	Dr Neale Walters
Manager	Mrs Philippa Hartney
Data Manager	Ms Kaye Jarman

Central Highlands & Wimmera BreastScreen

Director	Dr Clifford Trotman
Manager	Ms Jennifer Slattery
Data Manager	Mrs Glenda Cairns

City & North Eastern BreastScreen

Director	Dr Jennifer Cawson
Manager	Dr Catherine Galbraith
Data Manager	Mrs Karen Winch (resigned November 1997) Ms Toni Barbetti

Geelong Screening & Assessment Service

Director	Dr Linda West
Manager	Ms Carol Belfrage- Richmond
Data Manager	Mr Phillip Kelly (resigned February 1999)

Gippsland BreastScreen

Director	Dr Robert Brownlee (resigned June 1997) Mr Iain Miller
Manager	Ms Michele Thompson (resigned November 1997) Ms Erin Verhoeven
Data Manager	Mr Geoff Duffell (resigned July 1998)

Maroondah BreastScreen

Director	Dr Rodney Taft
Manager	Ms Angelia Dixon
Data Manager	Ms Cathy Krishnan (resigned November 1997) Ms Alison Jones

Monash BreastScreen

Director	Mr Stewart Hart
Manager	Ms Louise Bowen
Data Manager	Ms Janita Bettio

Royal Melbourne Hospital Essendon BreastScreen

Director	Mr Ian Russell (resigned December 1998)
Manager	Ms Mary Hevern (resigned January 1998) Ms Anna Keating (acting until June 1998) Ms Victoria Cuevas (acting until November 1998) Ms Patsy Morrison
Data Manager	Ms Susy Alessandri

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Deputy Director	Ms Pauline Sanders
Administration Officer	Ms Brenda Meyers (resigned December 1998) Ms Julie-Anne Lilienthal

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BreastScreen Victoria provides a free mammography screening service to women without breast symptoms aged 50 and over. To arrange a free appointment phone 13 20 50 (toll free for country callers).



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