

BreastScreen Victoria
Annual Statistical Report



2008



BreastScreen Victoria

Caring about Women

BREASTSCREEN VICTORIA: ANNUAL STATISTICAL REPORT, 2008

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INTRODUCTION

ABOUT BREASTSCREEN VICTORIA

BreastScreen Victoria is an accredited part of BreastScreen Australia, a national program jointly funded by the Victorian and Commonwealth Governments, which aims to reduce deaths from breast cancer through early detection of the disease. BreastScreen Australia invites women aged 50–69 years who do not have any breast symptoms or changes to have a free screening mammogram once every two years. Current research shows that screening has the greatest potential to reduce mortality from breast cancer in women aged 50–69 years. Women aged 40–49 years and over 70 are also eligible to attend.

The Program is made up of three service components: the BreastScreen Victoria Coordination Unit, screening services and regional reading and assessment services. The BreastScreen Victoria Coordination Unit is an independently incorporated association which administers funding for the regional services, manages the centralised information and appointment service, coordinates the Mobile Screening Service, manages client information, coordinates state-wide communications and recruitment, monitors service provision and coordinates special projects.

There are 39 permanent screening services and a Mobile Screening Service that visits 29 locations on a two-yearly cycle. Eight regional reading and assessment services provide all clinical services from the initial screening mammogram to the point of diagnosis.

The BreastScreen Australia Quality Improvement Program ensures that all BreastScreen services delivered in Victoria operate under and comply with national standards. Performance monitoring and evaluation against the standards is conducted quarterly by the State Accreditation Committee and the National Quality Management Committee. All services are assessed regularly by an independent multidisciplinary team.

The Annual Statistical Report provides summary data on women who attended the BreastScreen Victoria program during 2008. This report also presents comparisons and trends over time for some areas.

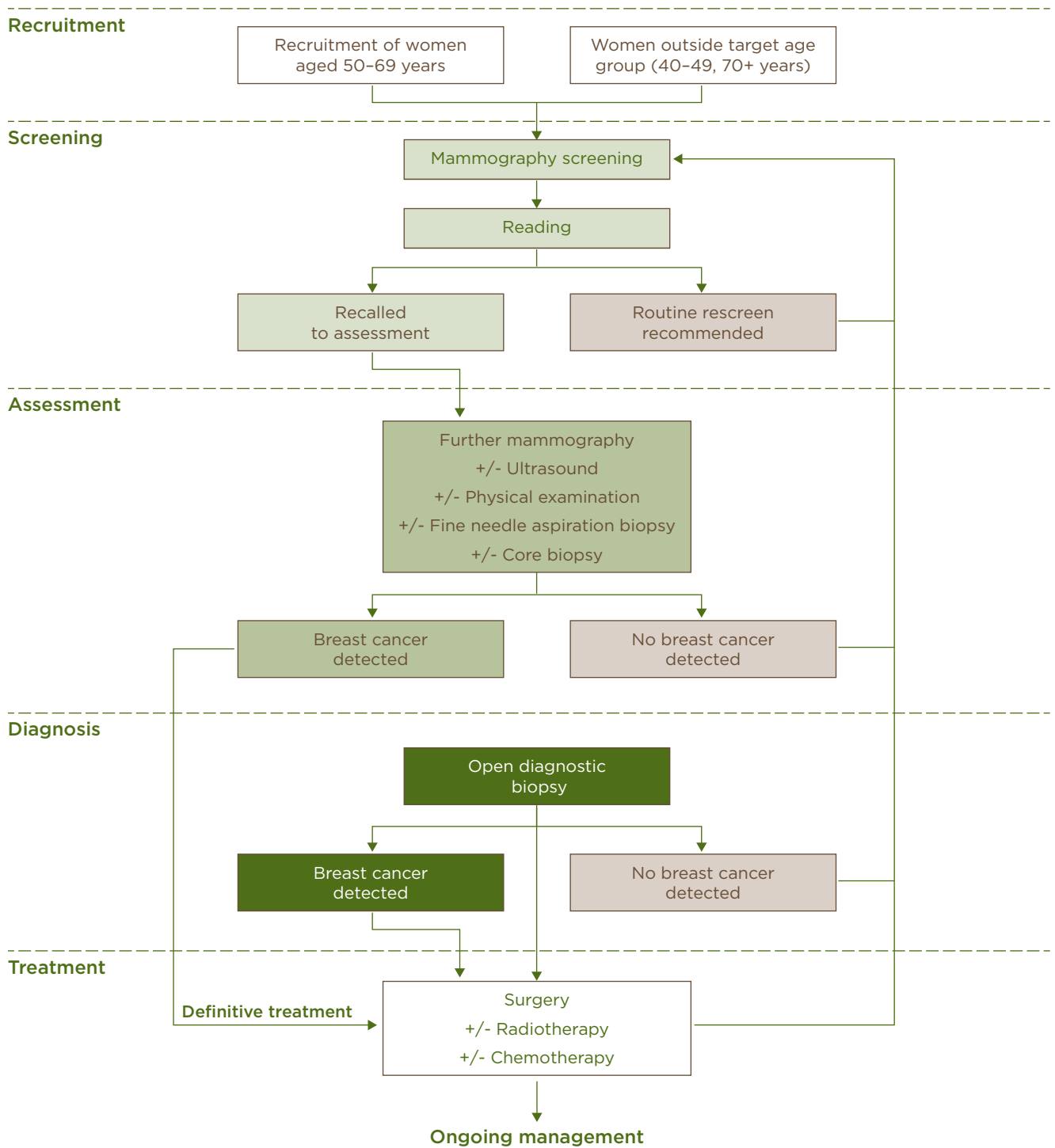
Statistical reports for the BreastScreen Victoria program are produced for each year and present comparable data so that time trends can be identified.

In some sections of this report, the numbers presented are small, and may place limitations on the interpretation of results and comparison of trends over time. The simple descriptive statistics contained in this report are intended to provide a snapshot of the BreastScreen Victoria program for 2008. Where relevant, the exclusions and limitations of the data presented are noted.

Further information about BreastScreen Victoria is available at www.breastscreen.org.au.



Figure 1: Screening and assessment pathway, 2008



Note: Open diagnostic biopsy and treatment are conducted outside the Program.

2008 HIGHLIGHTS

Screening

In 2008, a total of 183,100 women were screened in the BreastScreen Victoria Program. Of these women, 152,137 (83.1%) were in the 50–69 year target age group and 25,316 (13.8%) attended for their first screening mammogram.

Of all Victorian women aged 50–69 years, 53.4% participated in the Program during the two-year period 1 January 2007 to 31 December 2008. The comparable participation rates for CALD and ATSI women were 36.7% and 32.1%.

Of women aged 50–67 years who were screened in 2008, 73.7% returned for rescreening within 27 months. The rescreen rate for first round women aged 50–67 years was 54.4% and 76.1% for subsequent round women.

The comparable rates for CALD and ATSI women were 67.4% and 65.3% respectively.

Digital mammography was used for 21.4% of all breast screens.

Assessment

Of the women screened in 2008, 171,437 (93.6%) were recommended for routine rescreen and 11,663 (6.4%) were recommended to attend for assessment. The recall to assessment rate was higher for first round women (13.7%) than for subsequent round women (5.1%).

Most women undergoing assessment (74.8%) were able to receive an outcome without an invasive procedure (fine needle biopsy or core biopsy or open biopsy) being performed.

Breast cancer detection

Of the 1,216 screen detected breast cancers diagnosed within BreastScreen Victoria in 2008; 953 (78.4%) were invasive breast cancers and 263 (21.6%) were ductal carcinoma in situ (DCIS). Of these, 82.4 % were in women aged 50–69 years.

Of the invasive breast cancers detected, 59.0% were small (15mm or less in size), 25.2% were classified as Grade 1 and 71.2% were node negative, all indicators of a good prognosis.

Breast cancer treatment

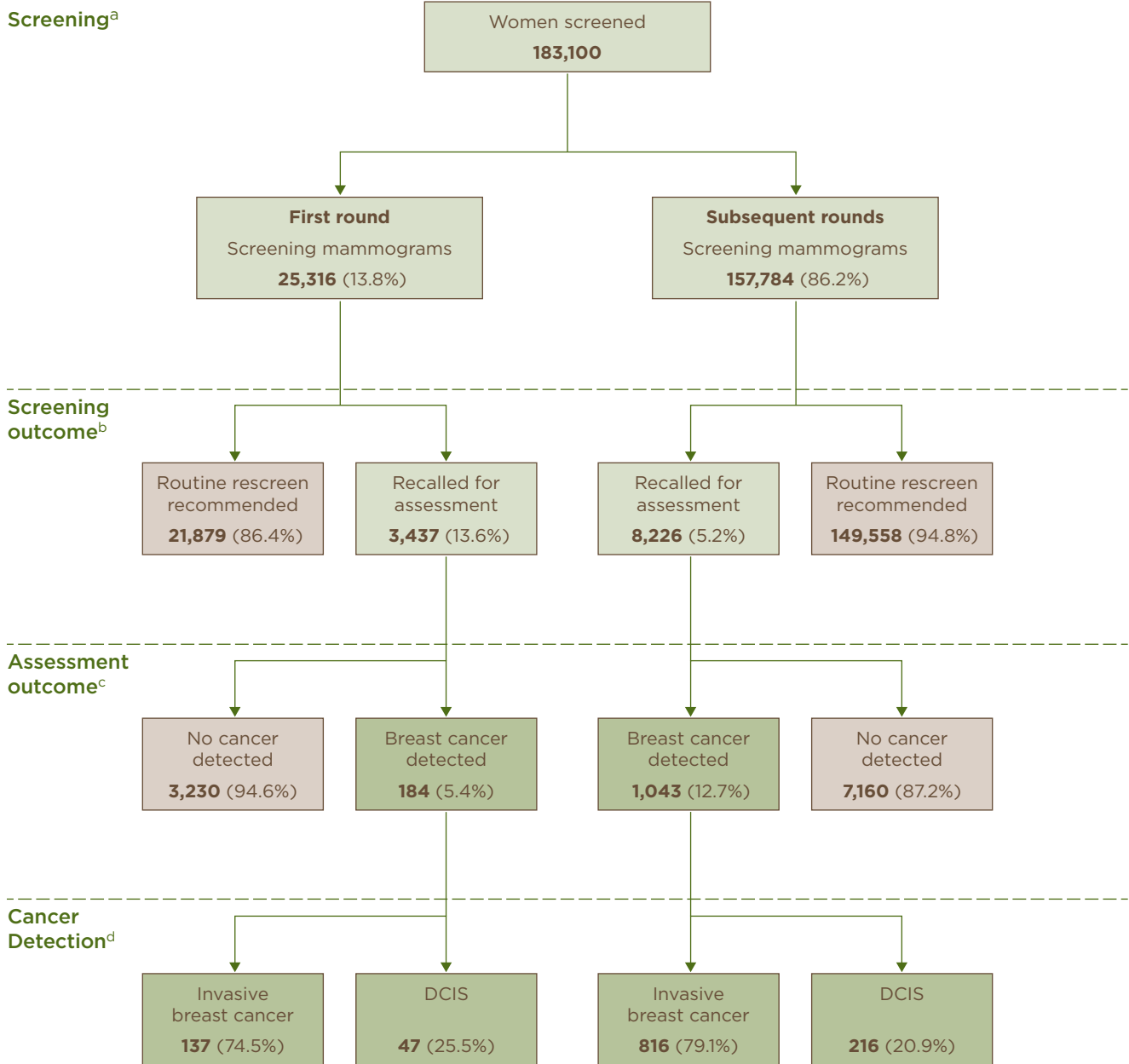
Eighty one percent of women with invasive breast cancer and 81% of women with DCIS (81.0%) underwent breast conserving surgery.

Of the women diagnosed with invasive breast cancer, 97.0% underwent axillary dissection. Of these women, 24.7% were found to have positive nodes.

Only 26.6% of women diagnosed with DCIS underwent axillary dissection. None of these women had positive nodes.



Figure 2: Screening and assessment pathway by round, 2008



Source: ^aTable 2, ^bTable 22, ^cTable 29, ^dTables 33 and 40.
 The source tables may exclude data for a small number of women. Table 29 excludes women who failed to attend assessment and women who did not complete assessment. Tables 33 and 40 exclude cancers diagnosed at early review more than 6 months after the screening mammogram.
 Note: In all tables, percentages may not add up to 100% due to rounding.

TECHNICAL NOTES

This Annual Statistical Report provides information about women screened by BreastScreen Victoria during the 2008 calendar year.

For the purposes of this report, 'women screened' refers to the number of screening appointments attended not individual women. For example, if a woman on annual recall attended two screening appointments within the 12-month reporting period, both screening appointments are counted.

Women's screening and assessment data is entered into the BreastScreen Victoria Client Information System by data services staff based at eight Reading and Assessment Services. Data is extracted centrally by the Information Services team from the data warehouse using Business Objects software. The availability of data items varies depending on where in the screening and assessment cycle the data originates, whether data is from within the Program, or whether data is obtained outside the Program (e.g. the provision of histology information following surgery).

Technical notes have been created to ensure consistency in the extraction of data for each statistical report.

Where relevant, the exclusions and limitations of the data presented are noted.



SCREENING

RECRUITMENT

Eligibility

Women are eligible for screening mammography with BreastScreen Victoria from the age of 40 years. Women aged 50–69 years are actively recruited because there is strong evidence that screening is most effective in detecting early breast cancer in this age group. Women aged 40–49 years, and 70 years and over, are eligible to attend, but are not sent two-yearly rescreening reminders. There is no evidence of benefit from breast cancer screening in women less than 40 years of age. These women are advised to consult their doctor if they are concerned about breast cancer.

Inviting new women

Women who turn 50 years of age and who have not previously attended BreastScreen Victoria are identified from the Victorian electoral roll. These women are sent a written invitation and a brochure titled 'Is BreastScreen for you?'. If within one month, no response is received to the invitation letter, a second invitation is posted.

Reinviting women

Women aged 50–69 years are routinely reinvited for screening 23 months after their previous mammogram if they have not already made an appointment on their own initiative. If there is no response within three months a second reminder letter is posted. Women recommended for annual screening will receive an invitation after 11 months if no appointment has been made.

Women aged 40–49 years who have reported a strong family history of breast cancer at a previous screening mammogram are sent two-yearly rescreening reminders. Women aged 40–49 years with a personal history of breast cancer, or a past diagnosis of lobular carcinoma in situ or atypical ductal hyperplasia are reinvited annually.

Women aged 70 years and over are not sent invitations for rescreening with the exception of women with a personal history of breast cancer or a past diagnosis of lobular carcinoma in situ or atypical ductal hyperplasia.

Response to invitation

During 2008, 35.8% of women invited to attend their first screen made an appointment. For women invited to attend for rescreening the response rate was higher (61.6%) (Table 1).

It is not certain that all appointments were made solely in response to the invitation letter; some women may have responded to other recruitment initiatives such as newspaper articles, advertisements or media campaigns.

Table 1: Response to invitation, 2008

Invitation type	Number of women invited	Appointments made	Response rate
Invitation	14,633	5,238	35.8%
Reinvitation	153,911	94,867	61.6%

Includes: Women who have responded to an invitation within 90 days of a letter being sent.

Note: The Victorian Electoral Commission makes available the names and addresses of all Victorian women aged 50–69 years under the Electoral Act 2002 as BreastScreen Victoria is a public health program which will benefit Victorian women.



DEMOGRAPHICS

Screening

The information in the following nine tables comes from a registration and consent form that each woman completes before her screening mammogram.

Screening by age and round

BreastScreen Victoria screened 183,100 women during 2008. Of these women, 25,316 (13.8%) attended for their first screening mammogram and 157,784 (86.2%) attended for their second or subsequent mammogram (Table 2).

Table 2: Women screened by age and round, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
First round women	8,951 61.3%	13,877 16.6%	2,101 3.1%	322 2.1%	65 5.7%	25,316 13.8%	15,978 10.5%
Subsequent round women	5,641 38.7%	69,822 83.4%	66,337 96.9%	14,900 97.9%	1,084 94.3%	157,784 86.2%	136,159 89.5%
Total women	14,592 100%	83,699 100%	68,438 100%	15,222 100%	1,149 100%	183,100 100%	152,137 100%

Note: Classification of screening status is based on screening within BreastScreen Victoria. Women attending for a first screen with BreastScreen Victoria may have had previous mammography outside the Program.

In 2008, 83.1% of women screened were within the target age group (50-69) (Table 3).

BreastScreen Victoria stopped sending rescreening reminders to women aged 70-74 years of age in 2007. These women were advised they were still welcome to attend screening, but would no longer receive invitation letters. The proportion of women screened in the 70-79 year age group was 13.7% in 2006. This proportion decreased to 12.4% in 2007 and 8.3% in 2008.

Table 3: Women screened by age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
Total women	14,592 8.0%	83,699 45.7%	68,438 37.4%	15,222 8.3%	1,149 0.6%	183,100 100%	152,137 83.1%

The number of women screened steadily increased between 1999 and 2006, and then declined in 2007 and 2008. This decline was seen in both first and subsequent round women (Table 4).

Table 4: Women screened by round, 1999-2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
First round women	32,653 19.1%	31,650 17.9%	35,908 19.0%	30,698 16.4%	25,691 13.6%	31,335 15.8%	29,227 14.8%	31,825 15.7%	25,952 13.3%	25,316 13.8%
Subsequent round women	138,737 80.9%	145,587 82.1%	152,772 81.0%	157,028 83.6%	163,099 86.4%	167,418 84.2%	168,439 85.2%	170,645 84.3%	169,338 86.7%	157,784 86.2%
Total women	171,390 100%	177,237 100%	188,680 100%	187,726 100%	188,790 100%	198,753 100%	197,666 100%	202,470 100%	195,290 100%	183,100 100%

Source: Table 4, 2007 ASR.



Figure 3: Women screened by round, 1999–2008



Women from culturally and linguistically diverse (CALD) backgrounds

Table 5 shows the number of women who attended for screening and reported on their registration form that they usually spoke a language other than English at home as their main language. These women are defined as ‘culturally and linguistically diverse’ (CALD).

Table 5: CALD women screened by age, 2008

	40–49	50–59	60–69	70–79	80+	Total	50–69
CALD	1,458	10,064	9,895	2,727	100	24,244	19,959
	10.0%	12.0%	14.5%	17.9%	8.7%	13.2%	13.1%

Aboriginal and Torres Strait Islander (ATSI) women

Table 6 shows the number of women who attended for screening and reported on their registration form that they were Aboriginal or Torres Strait Islander (ATSI).

Table 6: ATSI women screened by age, 2008

	40–49	50–59	60–69	70–79	80+	Total	50–69
ATSI	39	175	122	20	1	357	297
	0.3%	0.2%	0.2%	0.1%	0.1%	0.2%	0.2%

Family history of breast cancer

Women with a family history of breast cancer are at increased risk of developing breast cancer (BreastScreen Australia, 2005a, p. 20). In Table 7, a ‘strong family history’ is defined as a woman whose mother, sister or daughter was diagnosed with breast cancer before 50 years of age, or whose father, brother or son was diagnosed with breast cancer at any age. Women who nominate other family members with breast cancer are classified as ‘other family history’.

In 2008, 40,003 (21.8%) of women screened reported a family history of breast cancer (Table 7). Younger women were more likely to report a family history of breast cancer. Women aged 40–49 with a strong family history of breast cancer are reinvited for screening every two years.

Table 7: Women with a family history of breast cancer by age, 2008

Family history of breast cancer	40–49	50–59	60–69	70–79	80+	Total	50–69
Strong family history	1,277	3,328	2,748	877	83	8,313	6,076
	8.8%	4.0%	4.0%	5.8%	7.2%	4.5%	4.0%
Other family history	3,347	14,226	11,295	2,578	244	31,690	25,521
	22.9%	17.0%	16.5%	16.9%	21.2%	17.3%	16.8%



Personal history of breast cancer

Women with a personal history of breast cancer are at higher risk of breast cancer, through either a recurrence or a new primary breast cancer (National Health and Medical Research Council, 2001, pp. 97–98). In general, women with a personal history of breast cancer are discouraged from attending BreastScreen Victoria. However, a small number of women who report a personal history of breast cancer do attend for screening. In 2008, 399 (0.2%) of women screened reported a personal history of breast cancer. Of these 399 women, 372 (93.2%) reported having a personal history of breast cancer treated with mastectomy (Table 8).

Table 8: Women with a personal history of breast cancer by age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
Personal history of breast cancer treated with breast conserving surgery	3 0.02%	10 0.01%	10 0.01%	3 0.02%	1 0.1%	27 0.01%	20 0.01%
Personal history of breast cancer treated with mastectomy	3 0.02%	48 0.1%	127 0.2%	147 1.0%	47 4.1%	372 0.2%	175 0.1%

Breast symptoms

BreastScreen Victoria is a screening program for the early detection of breast cancer for women without breast symptoms or problems. BreastScreen Victoria advises women with breast symptoms to see their own doctor. However, the Program does screen women who report breast symptoms at the time of their screening appointment.

In 2008, 8.7% of women reported breast symptoms at the time of screening. Younger women were more likely to report breast symptoms (Table 9).

Table 9: Women with breast symptoms by age, 2008

Breast symptoms	40-49	50-59	60-69	70-79	80+	Total	50-69
Breast lump and/or nipple discharge	1,033 7.1%	2,829 3.4%	1,343 2.0%	240 1.6%	29 2.5%	5,474 3.0%	4,172 2.7%
Other breast symptoms	1,682 11.5%	4,835 5.8%	2,929 4.3%	811 5.3%	106 9.2%	10,363 5.7%	7,764 5.1%

Of the 5,474 women with a breast lump and/or nipple discharge, there were 661 women with symptoms (12.1%) that were considered suspicious of breast cancer, and for which recall for assessment was recommended. This number comprised 553 women with a lump that had been present for less than 12 months which had not been investigated by a medical practitioner and 108 women with a nipple discharge that had been present for less than 12 months which had not been investigated by a medical practitioner.

Breast implants

Women with breast implants are eligible to screen within the BreastScreen Victoria program. During 2008, 0.7% of women screened reported having breast implants (Table 10).

Table 10: Women with breast implants by age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
Breast implants	144 1.0%	693 0.8%	465 0.7%	44 0.3%	1 0.1%	1,347 0.7%	1,158 0.8%



IMAGING

Analogue and digital screening

Digital mammography was first introduced to BreastScreen Victoria in 2006. During 2008 the Bendigo screening site was converted to digital screening. The proportion of digital screening increased from 5.8% in 2006, to 17.0% in 2007 and 21.4% in 2008 (Table 11).

Table 11: Women screened by modality and age, 2008

Modality	40-49	50-59	60-69	70-79	80+	Total	50-69
Digital	3,189 21.9%	17,949 21.4%	14,305 20.9%	3,335 21.9%	344 29.9%	39,122 21.4%	32,254 21.2%
Analogue	11,403 78.1%	65,750 78.6%	54,133 79.1%	11,887 78.1%	805 70.1%	143,978 78.6%	119,883 78.8%
Total	14,592 100%	83,699 100%	68,438 100%	15,222 100%	1,149 100%	183,100 100%	152,137 100%

Imaging quality

Most women who attended for screening had two x-ray images of each breast, giving a total of four images (Table 12). Additional images may be required for women with larger breasts, inadequate breast tissue or breast implants. In 2008, 18.7% of women screened had more than four images taken.

Table 12: Number of images for each woman screened by age, 2008

Number of images	40-49	50-59	60-69	70-79	80+	Total	50-69
Four images or less	12,265 84.1%	68,811 82.2%	54,671 79.9%	12,232 80.4%	929 80.9%	148,908 81.3%	123,482 81.2%
More than four images	2,327 15.9%	14,888 17.8%	13,767 20.1%	2,990 19.6%	220 19.1%	34,192 18.7%	28,655 18.8%
Total	14,592 100%	83,699 100%	68,438 100%	15,222 100%	1,149 100%	183,100 100%	152,137 100%

It may be necessary to repeat screening images if the images taken are deemed to be of poor quality. Overall, 1.2% of all images taken were technical repeat images, with the percentage varying little across women of different age groups (Table 13).

Table 13: Technical repeat images by age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
Images taken	63,468	367,097	302,890	66,450	4,904	804,809	669,987
Technical repeat images taken	770	4,434	3,346	740	56	9,346	7,780
Technical repeat rate	1.2%	1.2%	1.1%	1.1%	1.1%	1.2%	1.2%

Note: Technical repeat images include images taken at the second screening attempt.

The rate of technical repeat images met the National Accreditation Standards (NAS) in 2008.

National Accreditation Standard	Result in 2008
2.10.3 The overall repeat rate for the Service is <3% of all screening films.	1.2%



PARTICIPATION

BreastScreen Victoria targets women aged 50–69 years, although women aged 40–49 years and 70 years and over are also eligible to attend. The participation rate measures the proportion of the eligible female population attending BreastScreen Victoria within a 24-month period. A reporting interval of 24 months is used to reflect the Program’s recommended screening interval of two years.

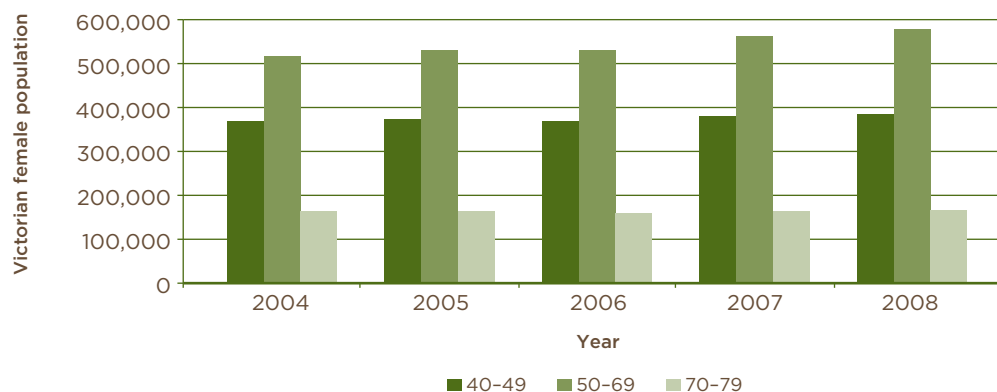
The Program aims to achieve a participation rate of at least 70% of women in the target 50–69 year age group. Since 2004 there has been a steady increase in the number of women in the target age group each year. There was an increase of over 16,000 women in the target age group from 2007 to 2008 (Table 14).

Table 14: Victorian female population by year, 2004–2008

Age group	2004	2005	2006	2007	2008
40-49	368,632	371,965	369,191	380,200	384,405
50-69	516,102	531,124	531,194	560,892	577,069
70-79	162,278	162,304	159,847	163,009	164,710

Source: Australian Bureau of Statistics (ABS): 2004, 2005, 2007 and 2008 Estimated Resident Population (ERP) and 2006 Census of Population and Housing, Victorian Females. ERP was not available in the Census year 2006.

Figure 4: Victorian female population by year, 2004–2008



The following tables show participation rates for Victorian women who were screened by BreastScreen Victoria between 1999–2000 and 2007–2008.

The participation rate for women aged 50–69 reached a peak of 60.1% in 2001–2002 before slowly decreasing to 53.4% in 2007–2008. The decline was due to both the steady increase in the Victorian female population in the target age group between 2004 and 2008, and the decreasing number of women screened in 2007 and 2008.

The participation rate for women aged 70–79 also decreased in 2007–2008. BreastScreen Victoria stopping sending screening reminder letters to women aged 70–74 years from 2007 onwards.



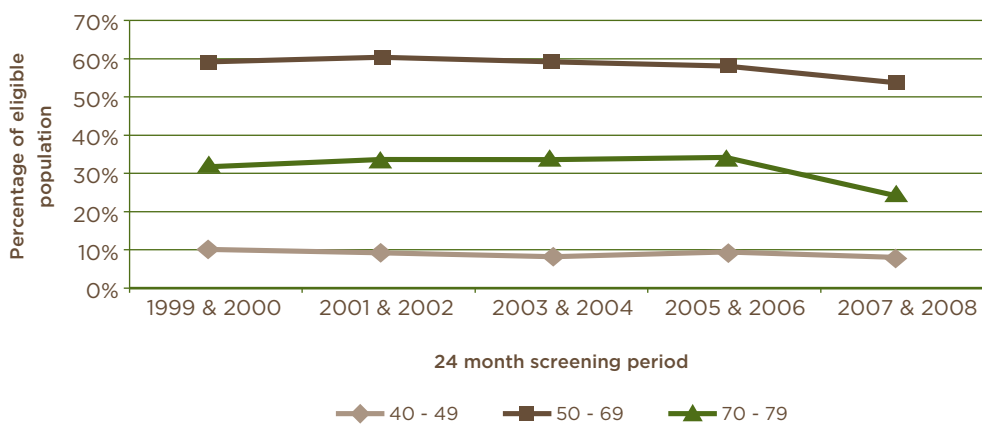
Table 15: : Participation rate by age group for 2-year calendar period 1999 & 2000 to 2007 & 2008

Age group	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008
40-49	9.9%	9.0%	8.0%	9.2%	7.8%
50-69	58.9%	60.1%	58.9%	57.8%	53.4%
70-79	31.5%	33.4%	33.4%	33.9%	23.8%

Source: Annual Statistical Report 2000 and 2002.

Note: The eligible population is averaged over the 2 reporting years. For example, the population for 2007-2008 is calculated as the average of the 2007 and 2008 Estimated Resident Population Figures. For 2005-2006 the average was calculated from the 2005 Estimated Resident Population and the 2006 Census count.

Figure 5: Participation rate by age for 2-year calendar period, 1999 & 2000 to 2007 & 2008



The participation rate did not meet the accreditation standard in 2007-2008.

National Accreditation Standard	Result in 2007-2008
1.1.1 ≥70% of women aged 50-69 years participate in screening in the most recent 24-month period.	53.4%

To ensure that our services are equitable and accessible, we monitor the participation rate across a number of categories.

Region

The Program provided equitable access to women across Victoria. Participation rates for women in the target age group were similar across geographic regions (Table 16). However, comparison of participation rates between 'Remote' and other regions should be treated with caution due to the small remote population and screening numbers.

Table 16: Participation rate by region and age for 2-year calendar period 2007 & 2008

Region	40-49	50-69	70-79
Major city	7.7%	53.7%	23.1%
Inner regional	7.2%	51.3%	24.7%
Outer regional	11.2%	57.5%	28.7%
Remote	19.0%	59.1%	43.2%
All regions	7.8%	53.4%	23.8%

Source: Australian Standard Geographical Classification (ASGC), provided by the Australian Bureau of Statistics 2006.



CALD women

Participation rates were lower for CALD women across all age groups (Table 17).

Table 17: Participation rate for CALD women by age for 2-year calendar period 2007 & 2008

	40-49	50-69	70-79
CALD	4.0%	36.7%	19.0%
All women	7.8%	53.4%	23.8%

Source: The population figure for CALD women is taken from the 2006 ABS Census data question: 'Does the person speak a language other than English at home?'

ATSI women

Participation rates were lower for ATSI women across all age groups (Table 18). However, comparison of participation rates between ATSI women and all Victorian women should be treated with caution due to the small ATSI population and screening numbers.

Table 18: Participation rate for ATSI women by age for 2-year calendar period 2007 & 2008

	40-49	50-69	70-79
ATSI	3.5%	32.1%	17.1%
All women	7.8%	53.4%	23.8%

Source: The population figure for ATSI women is taken from the 2006 ABS Census females by indigenous status and age data



RESCREEN

Rescreen rates measure the proportion of women who return for screening in the Program within the recommended screening interval. A high rescreen rate is important to both increase the likelihood of breast cancers being detected early in screened women and to maintain overall participation. While the recommended screening interval is 24 months, a 27 month time period is set to allow a reasonable timeframe for women to respond to invitations.

For the 179,340 women screened during 2008 who were eligible to be rescreened, 63.3% were rescreened by the Program within 27 months. This figure rose to 77.0% within 36 months (Table 19).

Table 19: Rescreen rate by round and age, 2008

	40-49	50-59	60-69	70-79	Total	50-67
First round women						
Screened in 2008	8,820	13,644	2,033	298	24,795	15,455
Rescreened within 24 months	702 8.0%	3,164 23.2%	359 17.7%	16 5.4%	4,241 17.1%	3,517 22.8%
Rescreened within 27 months	2,210 25.1%	7,449 54.6%	979 48.2%	50 16.8%	10,688 43.1%	8,400 54.4%
Rescreened within 36 months	3,644 41.3%	9,952 72.9%	1,255 61.7%	72 24.2%	14,923 60.2%	11,161 72.2%
Subsequent round women						
Screened in 2008	5,569	69,027	65,346	14,603	154,545	123,883
Rescreened within 24 months	1,117 20.1%	22,067 32.0%	21,555 33.0%	1,144 7.8%	45,883 29.7%	42,858 34.6%
Rescreened within 27 months	2,916 52.4%	51,244 74.2%	45,217 69.2%	3,387 23.2%	102,764 66.5%	94,334 76.1%
Rescreened within 36 months	4,014 72.1%	61,294 88.8%	52,948 81.0%	4,824 33.0%	123,080 79.6%	110,599 89.3%
All women						
Screened in 2008	14,389	82,671	67,379	14,901	179,340	139,338
Rescreened within 24 months	1,819 12.6%	25,231 30.5%	21,914 32.5%	1,160 7.8%	50,124 27.9%	46,375 33.3%
Rescreened within 27 months	5,126 35.6%	58,693 71.0%	46,196 68.6%	3,437 23.1%	113,452 63.3%	102,734 73.7%
Rescreened within 36 months	7,658 53.2%	71,246 86.2%	54,203 80.4%	4,896 32.8%	138,003 77.0%	121,760 87.4%

Includes: Women recommended for routine rescreen.

Excludes: Women resident interstate and women aged 80 years and over.

Rescreen rates did not meet the accreditation standards in 2008.

National Accreditation Standard		Result in 2008
1.2.1	≥75% of women aged 50-67 who attend for their first screen within the Program are rescreened within 27 months.	54.4%
1.2.2	≥90% of those attending for a second or subsequent screening round are rescreened within 27 months.	76.1%



CALD women

The rescreen rate were lower for CALD women aged 50–67 years than all Victorian women aged 50–67 years (Table 20).

Table 20: Rescreen rate for CALD women by age, 2008

	40-49	50-59	60-69	70-79	Total	50-67
Screened in 2008	1,451	10,002	9,834	2,709	23,996	17,909
Rescreened within 24 months	10.2%	20.5%	19.4%	4.3%	17.6%	21.6%
Rescreened within 27 months	34.2%	65.0%	59.3%	13.2%	55.0%	67.4%
Rescreened within 36 months	55.1%	84.9%	75.1%	20.7%	71.8%	85.7%

ATSI women

The rescreen rates for ATSI women aged 50–67 years were lower than the rates for all Victorian women aged 50–67 years (Table 21).

Table 21: Rescreen rate for ATSI women by age, 2008

	40-49	50-59	60-69	70-79	Total	50-67
Screened in 2008	36	164	120	19	339	265
Rescreened within 24 months	5.6%	28.7%	35.0%	0.0%	26.8%	32.8%
Rescreened within 27 months	16.7%	61.0%	65.0%	26.3%	55.8%	65.3%
Rescreened within 36 months	30.6%	73.2%	76.7%	26.3%	67.3%	76.6%



SCREENING OUTCOME

Table 22 shows the number of women within each age group who were recommended for routine rescreen and the number recommended for assessment. While 13.6% of first round women were recommended for assessment, the comparable figure for subsequent round women was 5.2%.

Table 22: Screening outcome by round and age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
First round women							
Routine rescreen recommended	7,761 86.7%	11,950 86.1%	1,832 87.2%	285 88.5%	51 78.5%	21,879 86.4%	13,782 86.3%
Assessment recommended	1,190 13.3%	1,927 13.9%	269 12.8%	37 11.5%	14 21.5%	3,437 13.6%	2,196 13.7%
Total	8,951 100%	13,877 100%	2,101 100%	322 100%	65 100%	25,316 100%	15,978 100%
Subsequent round women							
Routine rescreen recommended	5,201 92.2%	65,983 94.5%	63,170 95.2%	14,170 95.1%	1,034 95.4%	149,558 94.8%	129,153 94.9%
Assessment recommended	440 7.8%	3,839 5.5%	3,167 4.8%	730 4.9%	50 4.6%	8,226 5.2%	7,006 5.1%
Total	5,641 100%	69,822 100%	66,337 100%	14,900 100%	1,084 100%	157,784 100%	136,159 100%
All women							
Routine rescreen recommended	12,962 88.8%	77,933 93.1%	65,002 95.0%	14,455 95.0%	1,085 94.4%	171,437 93.6%	142,935 94.0%
Assessment recommended	1,630 11.2%	5,766 6.9%	3,436 5.0%	767 5.0%	64 5.6%	11,663 6.4%	9,202 6.0%
Total	14,592 100%	83,699 100%	68,438 100%	15,222 100%	1,149 100%	183,100 100%	152,137 100%



ASSESSMENT

As a public health program for well women with no signs of breast cancer, the majority of women screened by BreastScreen Victoria do not have the disease. As well as achieving high cancer detection rates, BreastScreen Victoria aims to minimise unnecessary recalls and investigations.

RECALL TO ASSESSMENT

Women are recalled to assessment for a number of reasons including abnormal mammography, symptoms of possible breast cancer (reported by the woman or noted by the radiographer during screening) or a personal history of breast cancer.

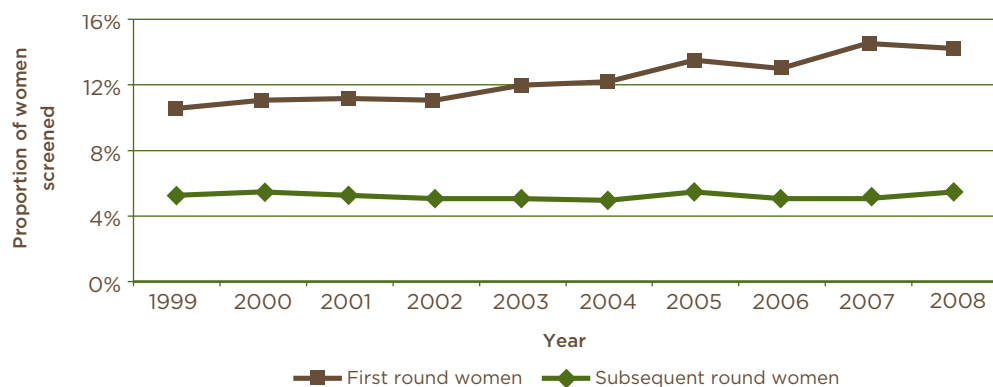
From 1999 to 2008, recall to assessment rates for women aged 50–69 years increased for first round women from 10.1% to 13.7%, but remained steady for subsequent round women (Table 23).

Table 23: Recall to assessment rates for women aged 50–69 by round, 1999 to 2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
First round women	10.1%	10.6%	10.7%	10.6%	11.5%	11.7%	13.0%	12.5%	14.0%	13.7%
Subsequent round women	4.9%	5.1%	4.9%	4.7%	4.7%	4.6%	5.1%	4.7%	4.7%	5.1%
Total women	5.7%	5.9%	5.9%	5.5%	5.5%	5.6%	5.9%	5.7%	5.6%	6.0%

Source: Table 23, 2007 ASR.

Figure 6: Recall to assessment rates for women aged 50–69 by round, 1999 to 2008



Recall to assessment rates did not meet the accreditation standard for first or subsequent round women in 2008.

National Accreditation Standard		Result in 2008
2.6.1	<10% for women aged 50–69 years who attend for their first screen are recalled for assessment.	13.7%
2.6.2	<5% for women aged 50–69 years who attend for their second or subsequent screen are recalled for assessment.	5.1%



ASSESSMENT PROCEDURES

A total of 11,363 women were assessed within BreastScreen Victoria. Sixteen women were cleared for routine rescreen without any further investigations being performed. For the 11,347 women who underwent assessment investigations within BreastScreen Victoria, Table 24 shows the range of procedures performed.

Over 74% of the women assessed had an assessment outcome determined without the need for an invasive procedure (fine needle aspiration, core biopsy or open diagnostic biopsy). Core biopsy was the most common invasive procedure performed (19.8%) compared with 2.7% for fine needle aspiration and 2.8% for open diagnostic biopsy.

Table 24: Range of assessment procedures by round and age, 2008

Assessment procedures performed	40-49	50-59	60-69	70-79	80+	Total	50-69
First round women							
Mammography only	281 24.5%	451 24.0%	52 20.4%	7 19.4%	2 15.4%	793 23.8%	503 23.5%
Ultrasound	471 41.1%	765 40.7%	97 38.0%	7 19.4%	6 46.2%	1,346 40.4%	862 40.4%
Clinical examination	154 13.4%	186 9.9%	27 10.6%	4 11.1%	2 15.4%	373 11.2%	213 10.0%
Fine needle aspiration	28 2.4%	58 3.1%	9 3.5%	2 5.6%	1 7.7%	98 2.9%	67 3.1%
Core biopsy	184 16.0%	362 19.3%	60 23.5%	14 38.9%	2 15.4%	622 18.7%	422 19.8%
Open diagnostic biopsy	29 2.5%	56 3.0%	10 3.9%	2 5.6%	0 0%	97 2.9%	66 3.1%
Total	1,147 100%	1,878 100%	255 100%	36 100%	13 100%	3,329 100%	2,133 100%

Continued



Table 24: Range of assessment procedures by round and age, 2008 (continued)

Assessment procedures performed	40-49	50-59	60-69	70-79	80+	Total	50-69
Subsequent round women							
Mammography only	130	1,088	899	186	10	2,313	1,987
	30.1%	29.1%	29.0%	26.5%	23.3%	28.8%	29.0%
Ultrasound	185	1,439	1,103	218	19	2,964	2,543
+/- mammography	42.8%	38.4%	35.6%	31.1%	44.2%	37.0%	37.2%
Clinical examination	44	349	232	59	8	692	581
+/- ultrasound	10.2%	9.3%	7.5%	8.4%	18.6%	8.6%	8.5%
+/- mammography							
Fine needle aspiration	10	98	77	21	2	208	175
+/-clinical examination	2.3%	2.6%	2.5%	3.0%	4.7%	2.6%	2.6%
+/- ultrasound							
+/- mammography							
Core biopsy	58	675	689	194	4	1,620	1,364
+/-fine needle aspiration	13.4%	18.0%	22.2%	27.6%	9.3%	20.2%	19.9%
+/-clinical examination							
+/- ultrasound							
+/- mammography							
Open diagnostic biopsy	5	94	98	24	0	221	192
	1.2%	2.5%	3.2%	3.4%	0%	2.8%	2.8%
Total	432	3,743	3,098	702	43	8,018	6,841
	100%	100%	100%	100%	100%	100%	100%
All women							
Mammography only	411	1,539	951	193	12	3,106	2,490
	26.0%	27.4%	28.4%	26.2%	21.4%	27.4%	27.7%
Ultrasound	656	2,204	1,200	225	25	4,310	3,404
+/- mammography	41.5%	39.2%	35.8%	30.5%	44.6%	38.0%	37.9%
Clinical examination	198	535	259	63	10	1,065	794
+/- ultrasound	12.5%	9.5%	7.7%	8.5%	17.9%	9.4%	8.8%
+/- mammography							
Fine needle aspiration	38	156	86	23	3	306	242
+/-clinical examination	2.4%	2.8%	2.6%	3.1%	5.4%	2.7%	2.7%
+/- ultrasound							
+/- mammography							
Core biopsy	242	1,037	749	208	6	2,242	1,786
+/-fine needle aspiration	15.3%	18.4%	22.3%	28.2%	10.7%	19.8%	19.9%
+/-clinical examination							
+/- ultrasound							
+/- mammography							
Open diagnostic biopsy	34	150	108	26	0	318	258
+/- core biopsy	2.2%	2.7%	3.2%	3.5%	0%	2.8%	2.9%
+/-fine needle aspiration							
+/-clinical examination							
+/- ultrasound							
+/- mammography							
Total	1,579	5,621	3,353	738	56	11,347	8,974
	100%	100%	100%	100%	100%	100%	100%

Excludes: Women assessed outside BreastScreen Victoria.



Invasive assessment procedures

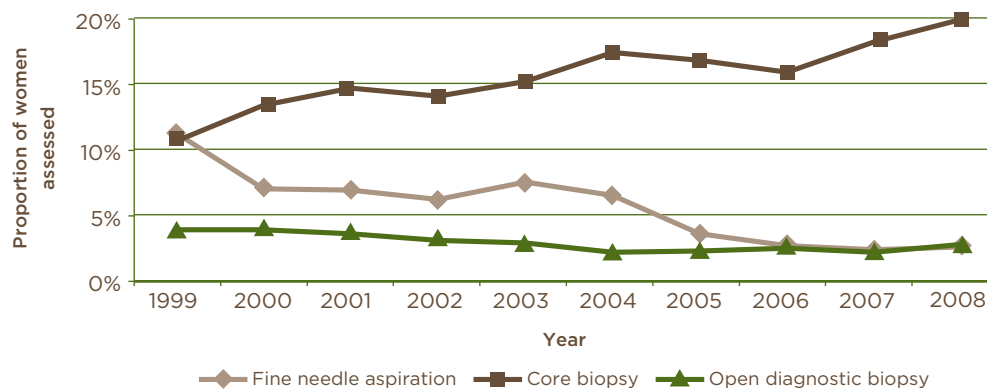
From 1999 to 2008, the use of core biopsy for women aged 50–69 years increased from 10.7% to 19.9%. Over the same time period the use of fine needle aspiration decreased from 11.3% to 2.7%, and the rate of open diagnostic biopsy decreased from 4.0% to 2.9% (Table 25).

Table 25: Biopsy procedures for women aged 50–69, 1999–2008

Biopsy procedure	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Fine needle aspiration	11.3%	7.1%	7.0%	6.3%	7.6%	6.6%	3.7%	2.8%	2.5%	2.7%
Core biopsy	10.7%	13.4%	14.7%	14.1%	15.2%	17.4%	16.8%	15.9%	18.2%	19.9%
Open diagnostic biopsy	4.0%	4.0%	3.7%	3.2%	3.0%	2.3%	2.4%	2.6%	2.3%	2.9%

Source: Table 25, 2007 ASR.

Figure 7: Biopsy procedures for women aged 50–69, 1999–2008



Core biopsy

Core biopsy is performed both to confirm a diagnosis of breast cancer, and also to confirm that a lesion is benign. A total of 2,705 core biopsies were performed on individual lesions during assessment. Of these, 43.5% of lesions were confirmed as malignant breast cancer and 48.8% were benign. Inadequate specimens were reported for 0.7% of all lesions having a core biopsy (Table 26).

Table 26: Core biopsy result by age, 2008

Core biopsy result	40-49	50-59	60-69	70-79	80+	Total	50-69
Inadequate specimen	3 1.0%	13 1.0%	3 0.3%	1 0.4%	0 0%	20 0.7%	16 0.7%
Benign	209 72.1%	707 56.0%	321 35.5%	82 34.2%	2 28.6%	1,321 48.8%	1,028 47.4%
Atypical/equivocal	142 4.8%	54 4.3%	39.0 4.3%	6 2.5%	0 0%	113 4.2%	93 4.3%
Suspicious	1 0.3%	8 0.6%	10 1.1%	2 0.8%	0 0%	21 0.8%	18 0.8%
Malignant	56 19.3%	453 35.9%	518 57.2%	144 60.0%	5 71.4%	1,176 43.5%	971 44.8%
Malignant (non-breast cancer)	0 0%	1 0.1%	4 0.4%	2 0.8%	0 0%	7 0.3%	5 0.2%
Atypical ductal hyperplasia	6 2.1%	22 1.7%	8 0.9%	3 1.3%	0 0%	39 1.4%	30 1.4%
Lobular carcinoma in situ	1 0.3%	5 0.4%	2 0.2%	0 0%	0 0%	8 0.3%	7 0.3%
Total	290 100%	1,263 100%	905 100%	240 100%	7 100%	2,705 100%	2,168 100%

Excludes: Women assessed outside BreastScreen Victoria.

Note: This table counts lesions not women (i.e. if a woman undergoes multiple core biopsies, all lesion results are included). This differs to Annual Statistical Reports prior to 2007 where one lesion was counted per woman.

Open diagnostic biopsy

BreastScreen Victoria aims to reach a diagnosis without the need for open diagnostic biopsy, which involves a general anaesthetic and hospitalisation. The benign open diagnostic biopsy rate provides a measure of the effectiveness of the Program in minimising unnecessary open biopsies. The benign open diagnostic biopsy rates met the accreditation standards in 2008.

National Accreditation Standard	Result in 2008
2.8.1 ≤0.35% of women who attend for their first screen are found not to have invasive cancers or DCIS after a diagnostic open biopsy.	0.34%
2.8.2 ≤0.16% of women who attend for their second or subsequent screen are found not to have invasive cancer or DCIS after a diagnostic open biopsy.	0.10%
2.8.3 ≤4.0% of women assessed after their first screening are found not to have invasive cancer or DCIS after a diagnostic open biopsy.	2.6%
2.8.4 <3.2% of women assessed after their second or subsequent screen are found not to have invasive cancer or DCIS after a diagnostic open biopsy.	1.9%



Preoperative diagnosis

For women who have breast cancer, it is preferable that a definite diagnosis is reached without the need for an open diagnostic biopsy, otherwise described as a preoperative diagnosis. The preoperative diagnosis rate for women who were assessed by BreastScreen Victoria was 93.3% (Table 27).

Table 27: Preoperative diagnosis rate by round and age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
First round women							
Open diagnostic biopsy	4 9.8%	6 5.8%	1 4.2%	0 0%	0 0%	11 6.1%	7 5.5%
Preoperative diagnosis	37 90.2%	97 94.2%	23 95.8%	9 100%	3 100%	169 93.9%	120 94.5%
Total	41 100%	103 100%	24 100%	9 100%	3 100%	180 100%	127 100%
Subsequent round women							
Open diagnostic biopsy	1 5.0%	29 7.9%	30 6.1%	9 6.4%	0 0%	69 6.7%	59 6.9%
Preoperative diagnosis	19 95.0%	339 92.1%	463 93.9%	131 93.6%	2 100%	954 93.3%	802 93.1%
Total	20 100%	368 100%	493 100%	140 100%	2 100%	1,023 100%	861 100%
All women							
Open diagnostic biopsy	5 8.2%	35 7.4%	31 6.0%	9 6.0%	0 0%	80 6.7%	66 6.7%
Preoperative diagnosis	56 91.8%	436 92.6%	486 94.0%	140 94.0%	5 100%	1,123 93.3%	922 93.3%
Total	61 100%	471 100%	517 100%	149 100%	5 100%	1,203 100%	988 100%

Excludes: Women assessed outside BreastScreen Victoria.

Note: 'Open diagnostic biopsy': women recommended by the Program for open diagnostic biopsy who underwent the procedure.

The preoperative diagnosis rate met the accreditation standard in 2008.

National Accreditation Standard		Result in 2008
2.7.1	≥75% of invasive breast cancers and DCIS are diagnosed without the need for an open diagnostic biopsy.	93.3%



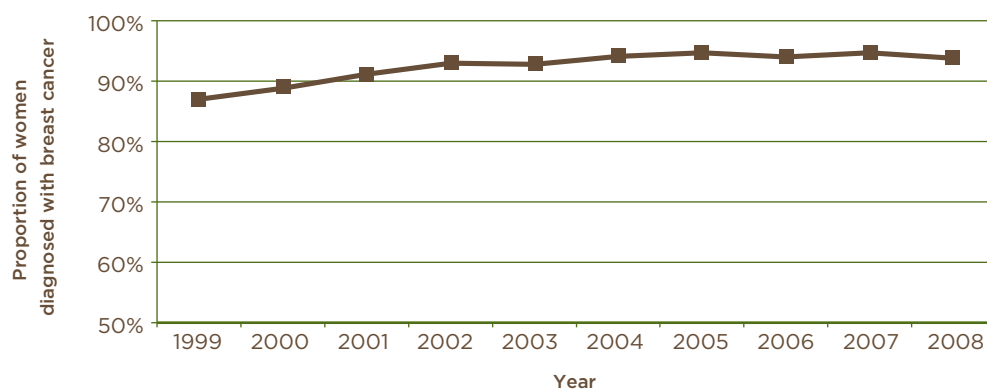
From 1999 to 2008 the rate of preoperative diagnosis increased from 86.6% to 93.3% (Table 28).

Table 28: Preoperative diagnosis rate, 1999–2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Preoperative diagnosis	86.6%	88.4%	90.7%	92.5%	92.3%	93.6%	94.2%	93.5%	94.2%	93.3%

Source: Table 28, 2007 ASR

Figure 8: Preoperative diagnosis rate, 1999–2008



OUTCOME OF ASSESSMENT

Of the 183,100 women screened, 11,663 women were recommended for assessment (Table 22). Of the women recommended for assessment, 40 declined or failed to attend assessment. Of the 11,623 women who were assessed, 260 (2.2%) women were assessed privately outside of the Program.

Table 29 shows the final outcome of assessment for women assessed both within and outside of BreastScreen Victoria. Of women aged 50-69 who were assessed, 11.0% were found to have breast cancer. 'Breast cancer' includes a diagnosis of invasive breast cancer or ductal carcinoma in situ (DCIS).

Table 29: Outcome of assessment by age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
First round women							
No breast cancer detected	1,142 96.5%	1,808 94.5%	242 90.6%	28 75.7%	10 76.9%	3,230 94.6%	2,050 94.0%
Breast cancer	42 3.5%	105 5.5%	25 9.4%	9 24.3%	3 23.1%	184 5.4%	130 6.0%
Other	0 0%	1 0.1%	0 0%	0 0%	0 0%	1 0%	1 0%
Total	1,184 100%	1,914 100%	267 100%	37 100%	13 100%	3,415 100%	2,181 100%
Subsequent round women							
No breast cancer detected	420 95.5%	3,450 90.1%	2,660 84.2%	583 80.0%	47 95.9%	7,160 87.2%	6,110 87.4%
Breast cancer	20 4.5%	376 9.8%	501 15.8%	144 19.8%	2 4.1%	1,043 12.7%	877 12.5%
Other	0 0%	3 0.1%	0 0%	2 0.3%	0 0%	5 0.1%	3 0%
Total	440 100%	3,829 100%	3,162 100%	728 100%	49 100%	8,208 100%	6,991 100%
All women							
No breast cancer detected	1,562 96.2%	5,258 91.6%	2,902 84.7%	611 79.8%	57 91.9%	10,390 89.4%	8,160 89.0%
Breast cancer	62 3.8%	481 8.4%	526 15.3%	153 20.0%	5 8.1%	1,227 10.6%	1,007 11.0%
Other	0 0%	4 0.1%	0 0%	2 0.3%	0 0%	6 0.1%	4 0%
Total	1,624 100%	5,743 100%	3,428 100%	766 100%	62 100%	11,623 100%	9,171 100%

Note: 'Other': women who did not complete assessment.



Early review

Women may be recommended for early review (further assessment) if a definitive diagnosis was not achieved at the initial assessment visit. Generally, women are recalled to early review at three, six or 12 months. The early review rate did not meet the accreditation standard in 2008.

National Accreditation Standard		Result in 2008
2.22.1	<0.2% of women who attend for screening are recommended for early review for further assessment.	0.2%

Recommendation for rescreening

Of the 183,100 women who attended for screening, 171,437 women were recommended for routine rescreening at the completion of their screening (Table 22). Of the 11,623 women who were assessed, 10,390 women were found not to have breast cancer and were recommended for routine rescreening (Table 29). In total, 181,827 women were recommended for routine rescreening after their 2008 mammogram.

The usual recommendation is for routine rescreening at two years. The Program offers annual screening for women at an increased risk of developing breast cancer. This group includes women with a personal history of breast cancer and women with a diagnosis of either atypical ductal hyperplasia (ADH) or lobular carcinoma in situ (LCIS). Only 0.5% of women were advised to return for annual screening (Table 30).

Table 30: Recommendation for routine rescreening by age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
Rescreen at 2 years	14,500 99.8%	83,001 99.8%	67,573 99.5%	14,843 98.5%	1,084 94.9%	181,001 99.5%	150,574 99.7%
Rescreen at 1 year	24 0.2%	190 0.2%	331 0.5%	223 1.5%	58 5.1%	826 0.5%	521 0.3%
Total	14,524 100%	83,191 100%	67,904 100%	15,066 100%	1,142 100%	181,827 100%	151,095 100%

The annual screening rate met the accreditation standard in 2008.

National Accreditation Standard		Result in 2008
1.5.1	The Service offers annual screening for ≤10% of women aged 50–69 years.	0.3%



CANCER DETECTION

SUMMARY OF CANCER DETECTION

Among the 183,100 women who attended for screening in 2008, there were 1,227 breast cancers diagnosed. Eleven of these cancers were diagnosed at early review more than six months after the screening mammogram. These cancers are not counted as screen detected cancers.

The following tables include only the 1,216 cancers that were considered screen detected cancers. Of these screen detected cancers, 953 (78.4%) were invasive breast cancers and 263 (21.6%) were ductal carcinoma in situ (DCIS) (Table 31).

BreastScreen Victoria collects surgical histopathology and primary treatment information from the treating clinician for all women diagnosed with breast cancer in the Program. This information is used for reporting, quality assurance and to promote best clinical practice.

Table 31: Cancer detection (invasive and DCIS) by age, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69
Invasive breast cancer	38 62.3%	373 78.0%	417 79.6%	121 81.8%	4 80.0%	953 78.4%	790 78.8%
DCIS	23 37.7%	105 22.0%	107 20.4%	27 18.2%	1 20.0%	263 21.6%	212 21.2%
Total	61 100%	478 100%	524 100%	148 100%	5 100%	1,216 100%	1,002 100%

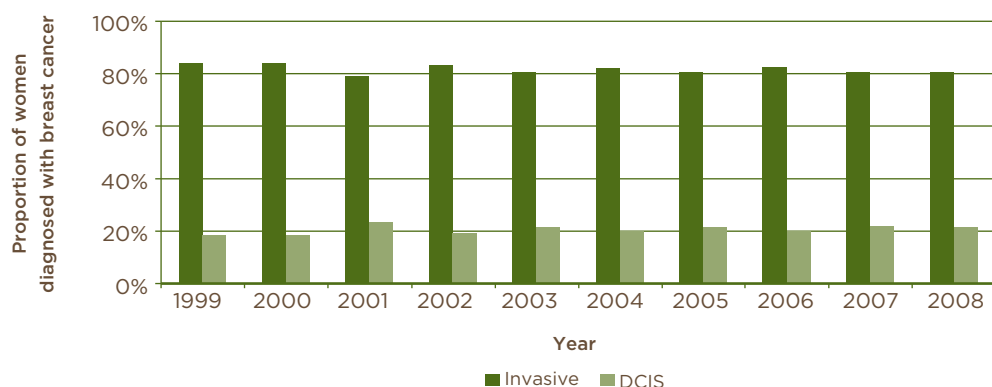
From 1999 to 2008, for women aged 50–69 the proportion of breast cancers detected as DCIS increased from 17.9% to 21.2% (Table 32).

Table 32: Cancer detection (invasive and DCIS) for women aged 50-69, 1999-2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Invasive	82.1%	82.1%	77.1%	81.3%	78.8%	80.3%	78.8%	80.6%	78.5%	78.8%
DCIS	17.9%	17.9%	22.9%	18.7%	21.2%	19.7%	21.2%	19.4%	21.5%	21.2%

Source: Table 32, 2007 ASR.

Figure 9: Cancer detection (invasive and DCIS) for women aged 50-69, 1999-2008



INVASIVE BREAST CANCER

BreastScreen Australia aims to reduce deaths from breast cancer by the early detection of invasive breast cancer in women aged 50–69 years (BreastScreen Australia, 2005a, p. 25).

Cancer detection by age and round

Younger women (aged 40–49 years) had lower invasive breast cancer detection rates than other age groups. For women aged 50–69 years the rate of invasive breast cancer diagnosis was higher for first round women (63.2 women per 10,000 women screened) than for subsequent round women (50.6 women per 10,000 women screened) (Table 33).

Table 33: Invasive breast cancer detection by age and round, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69 (95% CI)
First round women							
Invasive breast cancers	27	82	19	7	2	137	101
Rate per 10,000 women screened	30.2	59.1	90.3	217.4	303.0	54.1	63.2 (51.5–76.8)
Subsequent round women							
Invasive breast cancers	11	291	398	114	2	816	689
Rate per 10,000 women screened	19.5	41.7	60.0	76.5	18.4	51.7	50.6 (46.9–54.5)
All women							
Invasive breast cancers	38	373	417	121	4	953	790
Rate per 10,000 women screened	26.1	44.6	60.9	79.5	34.8	52.0	51.9 (48.4–55.7)

Invasive breast cancer detection rates met the accreditation standards in 2008.

National Accreditation Standard		Result in 2008
2.1.1	≥50 women per 10,000 women aged 50–69 years who attend for their first screen are diagnosed with invasive breast cancer	63.2
2.1.2	≥35 women per 10,000 women attending for a subsequent screen are diagnosed with invasive breast cancer	50.6

The rate of diagnosis of invasive breast cancer is lower among subsequent round women. This is because women at the first screening round may have cancers that have recently developed or cancers that have been present for some years.

The invasive cancer detection rate for subsequent round women increased steadily between 2004 and 2008 (see Table 34).

Table 34: Invasive breast cancer detection rate for women aged 50–69 by round, 1999–2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
First round	57.3	56.1	61.9	55.6	54.3	54.8	67.5	52.0	58.6	63.2
Subsequent round	40.7	45.3	37.8	38.3	37.7	40.1	40.3	41.2	44.1	50.6

Source: Figure 34, 2007 ASR.

Note: Rate per 10,000 women screened.



Figure 10: Invasive breast cancer detection rate for women aged 50–69 by round, 1999–2008



Size

The Program aims to detect invasive breast cancers when they are small and low grade, prior to spread to the regional lymph nodes. Of the 953 invasive breast cancers detected in 2008, 561 (59.0%) were small ($\leq 15\text{mm}$) in size (Table 35). The proportion of large invasive breast cancers ($>15\text{mm}$) was higher for first round women, (44.5%) compared with subsequent round women (38.4%).

Table 35: Invasive breast cancer detection by tumour size and round, 2008

	$\leq 10\text{mm}$	11-15mm	$>15\text{mm}$	Unknown	Total invasive
First round women	38 27.7%	32 23.4%	61 44.5%	6 4.4%	137 100%
Subsequent round women	263 32.2%	228 27.9%	313 38.4%	12 1.5%	816 100%
Total women	301 31.6%	260 27.3%	374 39.2%	18 1.9%	953 100%

For women aged 50–69 years the detection rate for small cancers (31.2 per 10,000 women screened) was higher than that for larger cancers (19.9 per 10,000 women screened), (Table 36).

Table 36: Invasive breast cancer detection for women aged 50–69 by tumour size and round, 2008

	$\leq 15\text{mm}$	$>15\text{mm}$	Unknown	Total
First round women				
Invasive breast cancers	55	41	5	101
Rate per 10,000 women screened	34.4	25.7	3.1	63.2
Subsequent round women				
Invasive breast cancers	419	261	9	689
Rate per 10,000 women screened	30.8	19.2	0.7	50.6
Total women				
Invasive breast cancers	474	302	14	790
Rate per 10,000 women screened	31.2	19.9	0.9	51.9
(95% CI)	(28.4–34.1)	(17.7–22.2)		



The small invasive breast cancer detection rate met the accreditation standard in 2008.

National Accreditation Standard		Result in 2008
2.2.1	≥25 per 10,000 women aged 50-69 years who attend for screening are diagnosed with small (≤15mm) invasive breast cancers	31.2

Histologic type

Table 37 shows invasive breast cancer diagnosed by tumour size and histologic type. Of the 953 invasive breast cancers diagnosed, 769 (80.7%) were invasive duct carcinoma. Of these invasive duct carcinomas, 475 (61.7%) were small (≤15mm).

Table 37: Invasive breast cancer by tumour size and histologic type, 2008

	≤10mm	11-15mm	>15mm	Unknown	Total
Invasive duct carcinoma	260 86.4%	215 82.7%	278 74.3%	16 88.9%	769 80.7%
Lobular classical carcinoma	11 3.7%	25 9.6%	65 17.4%	1 5.6%	102 10.7%
Mixed ductal/lobular carcinoma	2 0.7%	5 1.9%	12 3.2%	0 0%	19 2.0%
Tubular carcinoma	12 4.0%	3 1.2%	3 0.8%	0 0%	18 1.9%
Mucinous carcinoma	9 3.0%	4 1.5%	4 1.1%	0 0%	17 21.8%
Lobular variant carcinoma	1 0.3%	2 0.8%	4 1.1%	0 0%	7 0.7%
Other	6 2.0%	6 2.3%	8 2.1%	1 5.6%	21 2.2%
Total	301 100%	260 100%	374 100%	18 100%	953 100%

Note: The 'Other' category include: cribriform, medullary and phyllodes tumours and other invasive breast cancers that were not further specified.

Grade

Tumours that are well differentiated (Grade 1) are associated with a better prognosis. Information about tumour grade was known for 935 (98.1%) of invasive breast cancers. In 2008, 25.2% of invasive breast cancers were well differentiated (Table 38).

Table 38: Invasive breast cancer detection by tumour size and grade, 2008

	≤10mm	11-15mm	>15mm	Unknown	Total
Well differentiated (Grade 1)	113 37.5%	70 26.9%	54 14.4%	3 16.7%	240 25.2%
Moderately differentiated (Grade 2)	135 44.9%	136 52.3%	194 51.9%	7 38.9%	472 49.5%
Poorly differentiated (Grade 3)	44 14.6%	52 20.0%	123 32.9%	4 22.2%	223 23.4%
Unknown Grade	9 3.0%	2 0.8%	3 0.8%	4 22.2%	18 1.9%
Total	301 100%	260 100%	374 100%	18 100%	953 100%



Nodal status

Axillary dissection is recommended for all women diagnosed with invasive breast cancer. Of the 953 women diagnosed with invasive breast cancer, 915 (96.0%) had an axillary dissection performed (Table 39). The results of axillary dissection were known for all but one of these women. Of the 915 women who had an axillary dissection, 24.7% had positive nodes. Nodes were more likely to be positive for women with larger tumours.

Table 39: Invasive breast cancer nodal status by tumour size, 2008

	≤10mm	11-15mm	>15mm	Unknown	Total
No dissection	13 4.3%	10 3.8%	9 2.4%	6 33.3%	38 4.0%
Dissection performed					
Node negative	249 82.7%	198 76.2%	222 59.4%	10 55.6%	679 71.2%
Node positive	38 12.6%	52 20.0%	143 38.2%	2 11.1%	235 24.7%
Unknown nodal status	1 0.3%	0 0%	0 0%	0 0%	1 0.1%
Total	301 100%	260 100%	374 100%	18 100%	953 100%



DCIS

DCIS is a disease that involves changes to the cells in the lining of the ducts of the breast. There is evidence that women with DCIS are at increased risk of subsequent development of invasive breast cancer (BreastScreen Australia, 2005a, p. 28).

DCIS by age and round

Of the 1,216 women diagnosed with a screen detected breast cancer in 2008, 263 (21.6%) were DCIS. Detection rates for DCIS were higher for first round women than for subsequent round women across all age groups (Table 40).

Table 40: DCIS detection by age and round 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69 (95% CI)
First round women							
DCIS	15	23	6	2	1	47	29
Rate per 10,000 women screened	16.8	16.6	28.6	62.1	151.5	18.6	18.1 (12.2-26.1)
Subsequent round women							
DCIS	8	82	101	25	0	216	183
Rate per 10,000 women screened	14.2	11.7	15.2	16.8	0.0	13.7	13.4 (11.57-15.5)
Total women							
DCIS	23	105	107	27	1	263	212
Rate per 10,000 women screened	15.8	12.5	15.6	17.7	8.7	14.4	13.9 (12.1-15.9)

DCIS detection rates met the accreditations standards in 2008.

National Accreditation Standard		Result in 2008
2.3.1	≥12 women per 10,000 women aged 50-69 years who attend for their first screen are diagnosed with DCIS	18.1
2.3.2	≥7 women per 10,000 women aged 50-69 years attending for a subsequent screen are diagnosed with DCIS	13.4

From 1999 to 2008, the DCIS detection rate for subsequent round women aged 50-69 years increased steadily. For first round women the DCIS detection rate continued to be variable (Table 41).

Table 41: DCIS detection rate for women aged 50-69 by round, 1999-2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
First round women	17.2	14.6	23.1	15.5	21.2	15.7	11.8	13.7	21.0	18.1
Subsequent round women	8.0	9.5	10.3	8.4	9.4	9.5	11.7	9.7	11.5	13.4

Source: Figure 41, 2007 ASR.



Figure 11: DCIS detection rate for women aged 50–69 by round, 1999–2008



Size

Of the 263 cases of DCIS detected in 2008, 111 (42.2%) were ≤ 15 mm in diameter (Table 42).

Table 42: DCIS detection by size and round, 2008

	≤ 10 mm	11-15 mm	>15 mm	Unknown	Total
First round women	8 17.0%	8 17.0%	19 40.4%	12 25.5%	47 100%
Subsequent round women	65 30.1%	30 13.9%	95 44.0%	26 12.0%	216 100%
Total women	73 27.8%	38 14.4%	114 43.3%	38 14.4%	263 100%

Excludes: Women diagnosed with an interval cancer.

Note: DCIS size is recorded as a single measurement of the greatest dimension of the DCIS from either a fixed or a fresh sample.

Grade

Low grade DCIS is associated with a better prognosis. Among the 263 cases of DCIS diagnosed, 40 (15.2%) were classified as low grade DCIS, 61 (23.2%) as intermediate grade and 151 (57.4%) were classified as high grade DCIS.

DCIS smaller than or equal to 15mm in diameter were more likely to be low grade (Table 43).

Table 43: DCIS by size and grade, 2008

	≤ 10 mm	11-15mm	>15 mm	Unknown	Total
High grade DCIS	30 41.1%	24 63.2%	82 71.9%	15 39.5%	151 57.4%
Intermediate grade DCIS	20 27.4%	9 23.7%	25 21.9%	7 18.4%	61 23.2%
Low grade DCIS	17 23.3%	3 7.9%	7 6.1%	13 34.2%	40 15.2%
Other DCIS	6 8.2%	2 5.3%	0 0%	3 7.9%	11 4.2%
Total	73 100%	38 100%	114 100%	38 100%	263 100%

Source: Information on grade is routinely collected from surgeons at the end of a woman's treatment.



Nodal status

Of the 263 women diagnosed with DCIS, 72 (27.4%) had an axillary dissection performed. All women with DCIS who underwent axillary dissection were node negative (Table 44).

Table 44: DCIS nodal status by tumour size, 2008

	≤10mm	11-15mm	>15mm	Unknown	Total
No dissection	62 84.9%	26 68.4%	69 60.5%	34 89.5%	191 72.6%
Dissection performed					
Node negative	11 15.1%	12 31.6%	45 39.5%	4 10.5%	72 27.4%
Node positive	0 0%	0 0%	0 0%	0 0%	0 0%
Total	73 100%	38 100%	114 100%	38 100%	263 100%

Source: Information on nodal status is routinely collected from surgeons at the end of a woman's treatment.



INTERVAL CANCER

An interval cancer is an invasive breast cancer diagnosed in the interval following a woman's screening mammogram (with a clear result) and prior to her next scheduled screening examination.

In Table 45, 'Year 1' reports on interval cancers diagnosed in the first year after screening. 'Year 2' reports on interval cancers diagnosed in second year after screening. A total of 354 interval cancers were identified among women screened in 2008. Of these, 114 were diagnosed during the first year and 240 during the second year.

Among women aged 50–69 years, 88 interval cancers were diagnosed in the first year after screening in 2008, giving an interval cancer rate of 5.9 per 10,000 women screened. First round women have a slightly higher interval cancer rate than subsequent round women for both Year 1 and Year 2.

Table 45: Interval cancers by round and age for the first and second year after screening, 2008

	40-49	50-59	60-69	70-79	80+	Total	50-69 (95% CI)
First round women							
Year 1							
Number of women	8,828	13,647	2,019	291	57	24,842	15,666
Number of interval cancers	4	12	0	0	1	17	12
Rate per 10,000 women	4.5	8.8	0	0	175.4	6.8	7.7 (3.9-13.4)
Year 2							
Number of women	8,824	13,636	2,017	291	57	24,825	15,653
Number of interval cancers	19	16	2	0	0	37	18
Rate per 10,000 women	21.5	11.7	9.9	0	0	14.9	11.5 (6.8-18.2)
Subsequent round women							
Year 1							
Number of women	5,573	69,032	65,269	14,468	1,022	155,364	134,301
Number of interval cancers	5	45	31	16	0	97	76
Rate per 10,000 women	9.0	6.5	4.7	11.1	0	6.2	5.7 (4.5-7.1)
Year 2							
Number of women	5,557	68,898	65,067	14,386	1,010	154,918	133,965
Number of interval cancers	7	74	96	24	2	203	170
Rate per 10,000 women	12.6	10.7	14.8	16.7	19.8	13.1	12.7 (10.9-14.7)

Continued



Table 45: Interval cancers by round and age for the first and second year after screening, 2008 (continued)

	40-49	50-59	60-69	70-79	80+	Total	50-69 (95% CI)
Total women							
Year 1							
Number of women years	14,401	82,679	67,288	14,759	1,079	180,206	149,967
Number of interval cancers	9	57	31	16	1	114	88
Rate per 10,000 women	6.2	6.9	4.6	10.8	9.3	6.3	5.9 (4.7-7.2)
Year 2							
Number of women	14,381	82,534	67,084	14,677	1,067	179,743	149,618
Number of interval cancers	26	90	98	24	2	240	188
Rate per 10,000 women	18.1	11.0	14.6	16.4	18.7	13.4	12.6 (10.8-14.5)

Note: Women recommended for routine rescreen at 2 years are at risk for 2 years after screening. Women recommended for annual rescreening are only at risk for 1 year after screening.

The National Accreditation Standards specify an interval cancer rate for the first year after screening. The interval cancer rate for the first 12 months after screening met the accreditation standard in 2008.

BreastScreen Australia National Accreditation Standards		Result in 2008
2.4.2a	<7 per 10,000 women aged 50-69 years who attend for screening are diagnosed with an invasive interval breast cancer between 0 and less than 12 months following a negative screening episode	5.9



BREAST CANCER TREATMENT

SURGICAL TREATMENT

Surgical treatment is performed outside BreastScreen Victoria. Information on surgical treatment is routinely collected from surgeons at the end of a woman's treatment. Surgical treatment information was recorded for all 1,216 women diagnosed with breast cancer in 2008.

Breast conserving surgery was performed for 772 (81.0%) of all women diagnosed with invasive breast cancer and 213 (81.0%) of all women with diagnosed with DCIS. A total of seven women elected to have no surgical treatment (Table 46).

Table 46: Surgical treatment for invasive breast cancer and DCIS by size, 2008

	Invasive				Invasive Total	DCIS	Total
	≤10mm	11-15mm	>15mm	Unknown			
No surgery	0 0%	1 0.4%	1 0.3%	4 21.2%	6 0.6%	1 0.4%	7 0.6%
Breast conserving surgery	263 87.4%	224 86.2%	275 73.5%	10 55.6%	772 81.0%	213 81.0%	985 81.0%
Mastectomy	39 12.6%	35 13.5%	98 26.2%	4 22.2%	175 18.4%	49 18.6%	224 18.4%
Total	301 100%	260 100%	374 100%	18 100%	953 100%	263 100%	1,216 100%

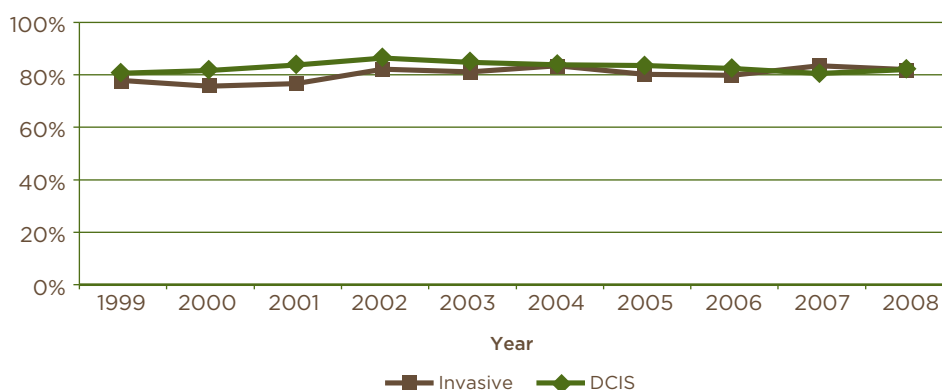
From 1999 to 2008, the rate of breast conserving surgery for invasive breast cancer and for DCIS remained fairly steady (Table 47).

Table 47: Surgical treatment: breast conserving surgery, 1999-2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Invasive	76.9%	74.7%	75.7%	81.1%	80.1%	82.4%	79.2%	78.8%	82.4%	81.0%
DCIS	79.6%	80.6%	82.7%	85.3%	83.7%	82.8%	82.5%	81.4%	79.5%	81.0%

Source: Table 47, 2007 ASR.

Figure 12: Surgical treatment: breast conserving surgery, 1999-2008



Region

Table 48 shows surgical treatment by region. Women living in inner regional areas were twice as likely to have a mastectomy as women living in a major city.

Table 48: Surgical treatment for invasive breast cancer by region, 2008

	Major city	Inner regional	Outer regional	Remote	Total
No surgery	4 0.6%	1 0.5%	1 1.7%	0 0%	6 0.6%
Breast conserving surgery	580 85.3%	150 71.1%	41 68.3%	1 50.0%	772 81.0%
Mastectomy	96 14.1%	60 28.4%	18 30.0%	1 50.0%	175 18.4%
Total	680 100%	211 100%	60 100%	2 100%	953 100%

Note: Geographical Location is classified according to the 2001 Australian Standard Geographic Classification (ASGC) produced by the Australian Bureau of Statistics.

A similar pattern was seen for women diagnosed with DCIS, with 15.7% of women living in the major city having a mastectomy compared with 24.0% of women living in inner regional areas. (Table 49).

Table 49: Surgical treatment for DCIS by region, 2008

	Major city	Inner regional	Outer regional	Remote	Total
No surgery	1 0.5%	0 0%	0 0%	0 0%	1 0.4%
Breast conserving surgery	171 83.8%	38 76.0%	4 44.4%	0 0%	213 81.0%
Mastectomy	32 15.7%	12 24.0%	5 55.6%	0 0%	49 18.6%
Total	204 100%	50 100%	9 100%	0 0%	263 100%

Note: Geographical Location is classified according to the 2001 Australian Standard Geographic Classification (ASGC) produced by the Australian Bureau of Statistics.



ADJUVANT THERAPY

Radiotherapy, chemotherapy and hormonal therapy may be used as adjuvant therapy.

Of the 953 women diagnosed with invasive breast cancer, 13 were reported to have had neo-adjuvant therapy prior to their surgical treatment. Of these 13 women, seven had chemotherapy, five had hormonal therapy and one woman had combined therapy.

Information about the use of post-surgery adjuvant therapy was known for 768 (80.6%) of the women diagnosed with invasive breast cancer. Of these women, 751 (97.8%) received adjuvant therapy (see Table 50).

Table 50: Adjuvant therapy for invasive breast cancer by tumour size, 2008

	≤10mm	11-15mm	>15mm	Unknown	Total
No adjuvant therapy	6 2.0%	4 1.5%	5 1.3%	2 11.1%	17 1.8%
Radiotherapy only	41 13.6%	20 7.7%	21 5.6%	2 11.1%	84 8.8%
Chemotherapy only	10 3.3%	3 1.2%	23 6.1%	1 5.6%	37 3.9%
Hormonal therapy only	25 8.3%	20 7.7%	38 10.2%	2 11.1%	85 8.9%
Radiotherapy and chemotherapy	12 4.0%	20 7.7%	39 10.4%	0 0%	71 7.5%
Radiotherapy and hormonal therapy	131 43.5%	114 43.8%	97 25.9%	6 33.3%	348 36.5%
Chemotherapy and hormonal therapy	3 1.0%	6 2.3%	19 5.1%	0 0%	28 2.9%
Radiotherapy, chemotherapy and hormonal therapy	17 5.6%	26 10.0%	54 14.4%	1 5.6%	98 10.3%
Unknown	56 18.6%	47 18.1%	78 20.9%	4 22.2%	185 19.4%
Total	301 100%	260 100%	374 100%	18 100%	953 100%

Radiotherapy treatment information was known for 632 (81.9%) women with invasive breast cancer who underwent breast conserving surgery. Of these women, 571 (90.3%) received radiotherapy.

Radiotherapy treatment information was known 133 women with invasive breast cancer treated by mastectomy. Of these women, 30 (22.6%) received radiotherapy (see Table 51).



Table 51: Adjuvant radiotherapy for invasive breast cancer by type of surgery and nodal status, 2008

	Breast conserving surgery				Mastectomy			
	Dissection performed			No dissection	Dissection performed			No dissection
	Node positive	Node negative	Unknown nodes		Node positive	Node negative	Unknown nodes	
Radiotherapy	111 69.8%	448 76.7%	1 100%	11 39.3%	20 26.3%	10 10.5%	0 0%	0 0%
No radiotherapy	20 12.6%	38 6.5%	0 0%	3 10.7%	43 56.6%	58 61.1%	0 0%	2 50.0%
Unknown	28 17.6%	98 16.8%	0 0%	14 50.0%	13 17.1%	27 28.4%	0 0%	2 50.0%
Total	159 100%	584 100%	1 100%	28 100%	76 100%	95 100%	0 0%	4 100%

Note: Does not include the data for 7 women who had no surgery performed.

Radiotherapy treatment information was known for 174 (81.7%) women with DCIS who underwent breast conserving surgery. In total 114 (65.5%) of these women received radiotherapy. There were no women diagnosed with DCIS who had positive nodes. Radiotherapy treatment information was known for 35 women with DCIS treated by mastectomy of these women no one received radiotherapy (Table 52).

Table 52: Adjuvant radiotherapy for DCIS by type of surgery and nodal status, 2008

	Breast conserving surgery				Mastectomy			
	Dissection performed			No dissection	Dissection performed			No dissection
	Node positive	Node negative	Unknown nodes		Node positive	Node negative	Unknown nodes	
Radiotherapy	0 0%	19 55.9%	0 0%	95 53.1%	0 0%	0 0%	0 0%	0 0%
No radiotherapy	0 0%	9 26.5%	0 0%	51 28.5%	0 0%	27 71.1%	0 0%	8 72.7%
Unknown	0 0%	6 17.6%	0 0%	33 18.4%	0 0%	11 28.9%	0 0%	3 27.3%
Total	0 0%	34 100%	0 0%	179 100%	0 0%	38 100%	0 0%	11 100%

Note: Does not include the data for 7 women who had no surgery performed.



DEFINITION OF TERMS

Aboriginal and Torres Strait Islander (ATSI) women: those who report on their BreastScreen Victoria registration and consent form that they are of Aboriginal or Torres Strait Islander descent.

Assessment: further investigation of a mammographic abnormality or symptom reported at screening.

Assessment outcome: is determined following the completion of the woman's assessment episode:

- **no breast cancer detected:** the lesion/s identified were benign.
- **breast cancer:** the lesion was identified as being breast cancer or 'other' cancers discovered in the breast tissue.
- **other:** the woman did not complete assessment.

An assessment outcome is determined for women assessed both within and outside of the Program.

Assessment procedures: procedures that may be performed are: further mammography, ultrasound, clinical examination, fine needle aspiration, core biopsy and open diagnostic biopsy.

Australian Standard Geographic Classification (ASGC): uses census data to classify areas which share common characteristics of remoteness, into broad geographical regions.

Axillary surgery: removal of the axillary lymph nodes to determine whether cancer has spread beyond the breast.

Benign: not cancerous.

Breast conserving surgery: surgery where the breast cancer is excised, together with a margin of normal breast tissue. The whole breast is not removed.

Cancer detection rate: the detection of invasive breast cancer and DCIS presented as the rate of cancers detected per 10,000 women screened.

Clinical examination: physical examination of the breast and axilla by a surgeon.

Confidence intervals: a range determined by variability in data, within which there is a specified (usually 95%) chance that the true value of a calculated parameter lies.

Core biopsy: removal of a core of breast tissue with the assistance of stereotaxis, or ultrasound. This tissue is then examined by a pathologist.

Culturally and Linguistically Diverse (CALD) women: those who report on their BreastScreen Victoria registration and consent form that they usually speak a language other than English at home as their main language.

Ductal carcinoma in situ (DCIS): a non-invasive breast tumour arising from cells lining the ducts.

Early review: the recall for further assessment of a woman with a screen-detected abnormality in the period of up to 12 months after assessment.

Estimated resident population (ERP): official population numbers compiled by the Australian Bureau of Statistics by age and sex, as at 30 June each year.

Fine needle aspiration (FNA): the sampling of cells from breast tissue for examination by a pathologist.



Interval cancer: an invasive breast cancer diagnosed in the interval following a woman's screening mammogram (with a clear result) and prior to her next scheduled screening examination. Includes invasive breast cancers diagnosed:

- at early review, or in the interval between assessment and early review where the recommendation for early review is six months or more from the screening date.
- at early rescreen if a woman presents with a breast lump and/or clear or blood-stained nipple discharge in the breast in which the breast cancer was diagnosed.
- between 6–24 months after recommendation is made for assessment and the woman fails to attend.

Women recommended for routine rescreen at two years are at risk of an interval breast cancer for two years after screening. Women recommended for annual rescreening are only at risk for one year after screening.

Invasive cancer: a tumour whose cells have invaded healthy or normal breast tissue.

Mammogram/breast screen: a radiographic depiction of the breast.

- analogue: capture of mammographic images on an x-ray film.
- digital: capture of mammographic images digitally.

Mastectomy: surgical removal of the whole breast.

National Accreditation Standards: a set of minimum standards and requirements for the BreastScreen Australia accreditation program.

Nodal status: indication of whether a breast cancer has spread (node positive) or has not spread (node negative) to axillary lymph nodes.

Open diagnostic biopsy: Surgical procedure to remove a tissue sample from the breast under anaesthetic. Open diagnostic biopsy is performed outside of BreastScreen Victoria.

Participation: measures the proportion of the eligible female population attending BreastScreen Victoria within a 24-month period.

Rescreen rate: the proportion of women who return for screening within the recommended screening interval.

Screening outcome: is determined by two radiologists following the completion of the screening episode:

- assessment recommended: the woman has further assessment procedures performed.
- routine rescreen recommended: the woman is invited back for screening within the Program. This may be within 24–27 months of a previous mammogram, or earlier if the client is considered high risk.

Screening round: a complete screening (and/or assessment cycle) within the Program.

- first round women: those attending for their first screen with BreastScreen Victoria.
- subsequent round women: those attending for a second or subsequent screen with BreastScreen Victoria.

Target population: Victorian women aged 50–69 years.



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