

# Appendix A: Data and statistical issues

## Data sources

Multiple data sources were analysed to produce this report. These are summarised in Table A1. All data used in this report are based on calendar years.

**Table A1: Sources for data presented in this report**

| Indicator | Description                       | Data source  |
|-----------|-----------------------------------|--|
| 1         | Participation                     | BreastScreen Australia state and territory services  |
| 2         | Cancer detection                  | BreastScreen Australia state and territory services  |
| 3         | Sensitivity                       | BreastScreen Australia state and territory services  |
| 4         | DCIS detection                    | BreastScreen Australia state and territory services, state and territory Cancer Registries |
| 5         | Recall to assessment              | BreastScreen Australia state and territory services  |
| 6         | Rescreening                       | BreastScreen Australia state and territory services  |
| 7         | Incidence (ICD-10 C50)            | National Cancer Statistics Clearing House, AIHW  |
| 8         | Mortality (ICD-9 174, ICD-10 C50) | National Mortality Database, AIHW  |

## Population data

The ABS estimated resident population (ERP) data were used to calculate screening participation, and cancer incidence and mortality rates.

Participation rates were calculated using the average of the 2003 and 2004 estimated resident female populations. The only exceptions to this were participation rates by socioeconomic status, by language spoken at home and by Indigenous status.

As the ABS does not calculate ERP by socioeconomic status or language spoken at home, alternative methods were used to calculate the denominators for these rates. In the case of language spoken at home, the denominator was calculated by applying the age-specific distribution from the language question in the 2001 national population census to the relevant age-specific ERP counts. The denominator for rates based on socioeconomic status was calculated by applying an ABS concordance between statistical local area (SLA) and socioeconomic status to the relevant ERP by SLA counts.

The most recent direct count of the Aboriginal and Torres Strait Islander population was carried out in the 2001 census. However, the ABS has released estimates of Aboriginal and Torres Strait Islander population for more recent years (ABS 2004). The average of the projected populations for 2003 and 2004 was used as the denominator for Indigenous Australian women participation rates.

## Mortality data

Mortality data in this report are given for 1990 to 2004. During this time, changes have been made to the coding and processing of mortality data that affect the comparability of the data. Data holdings for 1987–1996 were manually coded using the ninth revision of the International Classification of Diseases (ICD-9). Data holdings for 1997 onwards have been coded using ICD-10. These data were coded using an automated system with slightly different coding rules.

The change to the coding and processing of mortality data has introduced a break in the data time series. The ABS has developed comparability factors, which are applied to the pre-1997 data, so that a single time series may still be derived (ABS 2002). For breast cancer, the comparability factor is close to one (0.98).

The application of a comparability factor causes the number of deaths before 1997 to be non-integer. Rounding has been used to put the number of deaths into whole numbers.

## Statistical analysis of BreastScreen monitoring indicators

### Crude rates

A crude rate is defined as the number of events over a specified period (for example, a year) divided by the total population at risk of the event. For example, a crude cancer incidence rate is defined as the number of new cases of cancer in a specified period divided by the population at risk.

### Age-specific rates

An age-specific rate is defined as the number of events for a specified age group over a specified period (for example, a year) divided by the total population at risk of the event in that age group. Age-specific rates in this report were calculated by dividing the number of deaths, cancer cases or women participating in the screening programs in each specified age group by the corresponding population in the same age group.

### Age-standardised rates

Age-standardised rates (ASRs) enable comparisons to be made between populations that have different age structures. This publication uses direct standardisation, in which the age-specific rates are multiplied by a constant population. This effectively removes the influence of the age structure on the summary rate.

As the *National health data dictionary* recommends the use of the 2001 Australian total estimated resident population as the standard population for health statistics, this population has been used for age-standardising mortality, incidence and participation rates. For statistics based on the population of women screened – that is, cancer detection rates, interval cancer rates and program sensitivity – rates are standardised to the 1998 population of women screened by BreastScreen Australia.

The method used for all these calculations consists of three steps:

*Step 1:* Calculate the age-specific rate for each age group.

*Step 2:* Calculate the expected number of cases in each five-year age group by multiplying the age-specific rates by the corresponding standard population and dividing by the appropriate factor (that is, 100,000 for mortality and incidence rates, 10,000 for cancer detection and sensitivity rates, and 100 for the participation rate).

*Step 3:* Sum the expected number of cases in each age group, divide by the total of the standard population and multiply by the appropriate factor (that is, 100,000 for mortality and incidence rates, 10,000 for cancer detection and sensitivity rates, and 100 for the participation rate). This gives the age-standardised rate.

## Rate denominators

Death rates and cancer incidence rates are expressed in this report as annual rates per 100,000 population. Rates for cancer detection are calculated per 10,000 women screened. Screening participation rates are expressed as a percentage of the eligible population. Rescreen and recall-to-assessment rates are expressed as a percentage of women screened.

## Confidence intervals

The 95% confidence intervals (CIs) in this report were calculated using a method developed by (Dobson et al. 1991). This method calculates approximate confidence intervals for a weighted sum of Poisson parameters.

The confidence intervals are used to provide an approximate indication of the differences between rates. Where the confidence intervals of two rates do not overlap, the corresponding rates are statistically significantly different from each other. This is used to compare individual stratified rates with the all-Australia rate. To be truly rigorous, such a comparison should be between a given rate and the rate calculated from the all-Australia data excluding the data underlying the specific rate in the comparison. Presentation of such a comparison in this report would, however, be unnecessarily complex. The approximate comparisons presented might understate the statistical significance of some differences, but they are sufficiently accurate for the purposes of this report.

As with all statistical comparisons, care should be exercised in interpreting the results of the comparison. If two rates are statistically significantly different from each other, this means that the difference is unlikely to have arisen by chance. Judgement should, however, be exercised in deciding whether or not the difference is of any practical significance.

## Stratification variables

The data in this report are presented either stratified by the age of the women at the time of screening (for the screening data), at the time of diagnosis (for the cancer incidence data) or at the time of death (for the cancer mortality data). A number of stratification variables apply to some or all of the data presented:

- state or territory
- geographic location
- socioeconomic status

- Indigenous status
- main language spoken at home
- tumour size
- screening round.

## State or territory

The state or territory reported is the one where screening took place (for the screening data) or where the diagnosis was made (for the cancer incidence data) or the place of usual residence (for the cancer mortality data).

This means that it is possible for a woman to be double-counted in the screening data. If she was screened in one jurisdiction and then screened again less than two years later in another jurisdiction, both screens may be included in the participation rate. This should, however, have a negligible effect on the reported participation rates.

## Geographic location

In all previous reports including 2000–2001, analysis of participation, incidence and mortality data by geographic region used the Rural, Remote and Metropolitan Areas (RRMA) classification. This classification was developed in 1994 by the then Department of Primary Industries and Energy and the then Department of Human Services and Health. It allows geographic regions to be classified into seven zones: two metropolitan, three rural and two remote (DPIE & DSHS 1994).

This report uses a more recent geographic classification in place of RRMA. The new system, known as the Australian Standard Geographical Classification (ASGC), groups geographic areas into five classes. These classes are based on Census Collection Districts (CDs) and defined using the Accessibility/Remoteness Index for Australia (ARIA). ARIA is a measure of the remoteness of a location from the services provided by large towns or cities. A higher ARIA score denotes a more remote location. The five classes of the ASGC Remoteness classification, along with a sixth ‘Migratory’ class, are listed in Table A2.

**Table A2: The remoteness areas for the ASGC Remoteness Classification**

| Region                    | Collection districts within region   |
|---------------------------|--|
| Major cities of Australia | CDs with an average ARIA index value of 0 to 0.2                                       |
| Inner regional Australia  | CDs with an average ARIA index value greater than 0.2 and less than or equal to 2.4    |
| Outer regional Australia  | CDs with an average ARIA index value greater than 2.4 and less than or equal to 5.92   |
| Remote Australia          | CDs with an average ARIA index value greater than 5.92 and less than or equal to 10.53 |
| Very remote Australia     | CDs with an average ARIA index value greater than 10.53                                |
| Migratory                 | Areas composed of off-shore, shipping and migratory CDs                                |

Source: ABS 2001.

The ASGC Remoteness classification is not directly comparable to the RRMA classification. Accessibility is judged purely on distance to one of the major urban centres. For example, the ASGC Remoteness classification allocates Hobart to its second group (Inner regional Australia) and Darwin to its third group (Outer regional Australia), whereas the RRMA classification grouped them together with the other capital cities.

## **Socioeconomic status**

Socioeconomic status was coded according to the Index of Relative Socio-economic Disadvantage (IRSD). The IRSD is one of the socioeconomic indexes for areas (SEIFA indexes) developed by the ABS to categorise geographic areas according to their social and economic characteristics.

It is important to note that the IRSD relates to the average disadvantage of all people living in a geographic area. Hence any variability between groups based on the IRSD will probably be smaller than if the variability had been measured between individuals.

## **Indigenous status**

The BreastScreen Australia Data Dictionary (AIHW & DoHA forthcoming) specifies that Indigenous status should be coded as

- Aboriginal
- Torres Strait Islander
- both Aboriginal and Torres Strait Islander
- not Indigenous or
- not-stated.

For the purposes of this report these categories were amalgamated and the data stratified into three categories:

- Indigenous
- not Indigenous or
- not-stated.

In addition, some jurisdictions do not use the 'Not-stated' category. If Indigenous status is not given, it is set to a default value. The default used is not the same for all jurisdictions. This means that the analysis based upon Indigenous status should be interpreted with caution.

## **Main language spoken at home**

The BreastScreen Australia Data Dictionary (AIHW & DoHA forthcoming) recommends that main language spoken at home be coded according to the four-digit ABS Australian Standard Classification of Languages, 1998 (ABS cat. no. 1267.0). This report has collapsed the classification into the simple dichotomy of 'English' and 'Other language'.

Although this stratification is reported as 'main language spoken at home', practice varies between the jurisdictions as to how this information is collected. In some jurisdictions there may thus be some lack of comparability with the BreastScreen Data Dictionary definition of 'main language'.

In addition, some jurisdictions do not use the 'Not-stated' category. If main language spoken at home is not given, it is set to a default value. The default used is not the same for all jurisdictions. This means that the analysis based upon main language spoken at home should be interpreted with caution.

## **Tumour size**

Tumour size is the size in millimetres of the malignant lesion, and applies to invasive cancers only. For more details about this stratification, see the definition given in the BreastScreen Australia Data Dictionary (AIHW & DoHA forthcoming).

## **Screening round**

The BreastScreen Australia Data Dictionary distinguishes between a woman's screening round in the national program and her round in the state or territory program. Round in the national program is used for this stratification in this report. However, it is not always possible to determine round in the national program, so for some women this stratification has been collected as round number in the state or territory program.

## **BreastScreen Australia Data Dictionary**

A data dictionary has been developed for the BreastScreen Australia Program (AIHW & DoHA forthcoming). Summary definitions of key concepts and terminology used in this report are given in the glossary. More detailed definitions and explanations may be found in the data dictionary.

# Appendix B: Tables published on the Internet

## Indicator 1: Participation

|           |   |
|-----------|---|
| Table 1:  | Number of women participating in BreastScreen Australia by age, states and territories, 2003–2004 |
| Table 2:  | Percentage of women participating in BreastScreen Australia, states and territories, 2003–2004    |
| Table 3:  | Number of women participating in BreastScreen Australia by age, states and territories, 2002–2003 |
| Table 4:  | Percentage of women participating in BreastScreen Australia, states and territories, 2002–2003    |
| Table 5:  | Number of women participating in BreastScreen Australia by age, states and territories, 2001–2002 |
| Table 6:  | Percentage of women participating in BreastScreen Australia, states and territories, 2001–2002    |
| Table 7:  | Number of women participating in BreastScreen Australia by age, states and territories, 2000–2001 |
| Table 8:  | Percentage of women participating in BreastScreen Australia, states and territories, 2000–2001    |
| Table 9:  | Number of women participating in BreastScreen Australia by age, states and territories, 1999–2000 |
| Table 10: | Percentage of women participating in BreastScreen Australia, states and territories, 1999–2000    |
| Table 11: | Number of women participating in BreastScreen Australia by age, states and territories, 1998–1999 |
| Table 12: | Percentage of women participating in BreastScreen Australia, states and territories, 1998–1999    |
| Table 13: | Number of women participating in BreastScreen Australia by age, states and territories, 1997–1998 |
| Table 14: | Percentage of women participating in BreastScreen Australia, states and territories, 1997–1998    |
| Table 15: | Number of women participating in BreastScreen Australia by age, states and territories, 1996–1997 |
| Table 16: | Percentage of women participating in BreastScreen Australia, states and territories, 1996–1997    |
| Table 17: | Participation in BreastScreen Australia by age and region, 2003–2004                              |
| Table 18: | Participation in BreastScreen Australia by age and region, 2001–2002                              |

|           |  |
|-----------|--|
| Table 19: | Participation in BreastScreen Australia by age and region, 1998–1999                       |
| Table 20: | Participation in BreastScreen Australia by age and socioeconomic status, 2003–2004         |
| Table 21: | Participation in BreastScreen Australia by age and socioeconomic status, 2001–2002         |
| Table 22: | Participation in BreastScreen Australia by age and socioeconomic status, 1998–1999         |
| Table 23: | Participation in BreastScreen Australia by age and Indigenous status, 2003–2004            |
| Table 24: | Participation in BreastScreen Australia by age and Indigenous status, 2001–2002            |
| Table 25: | Participation in BreastScreen Australia by age and Indigenous status, 1998–1999            |
| Table 26: | Participation in BreastScreen Australia by age and main language spoken at home, 2003–2004 |
| Table 27: | Participation in BreastScreen Australia by age and main language spoken at home, 2001–2002 |
| Table 28: | Participation in BreastScreen Australia by age and main language spoken at home, 1998–1999 |

## **Indicator 2: Detection rate for small invasive cancers**

|           |   |
|-----------|---|
| Table 29: | Numbers of women screened and cases of small-diameter ( $\leq 15$ mm) invasive cancers detected in these women, first screening round, by age, states and territories, 2004 |
| Table 30: | Age-specific rates of small-diameter ( $\leq 15$ mm) invasive cancers detected in women screened, first screening round, states and territories, 2004                       |
| Table 31: | Numbers of women screened and cases of small-diameter ( $\leq 15$ mm) invasive cancers detected in these women, first screening round, by age, states and territories, 2003 |
| Table 32: | Age-specific rates of small-diameter ( $\leq 15$ mm) invasive cancers detected in women screened, first screening round, states and territories, 2003                       |
| Table 33: | Numbers of women screened and cases of small-diameter ( $\leq 15$ mm) invasive cancers detected in these women, first screening round, by age, states and territories, 2002 |
| Table 34: | Age-specific rates of small-diameter ( $\leq 15$ mm) invasive cancers detected in women screened, first screening round, states and territories, 2002                       |
| Table 35: | Numbers of women screened and cases of small-diameter ( $\leq 15$ mm) invasive cancers detected in these women, first screening round, by age, states and territories, 2001 |
| Table 36: | Age-specific rates of small-diameter ( $\leq 15$ mm) invasive cancers detected in women screened, first screening round, states and territories, 2001                       |

- Table 37: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, first screening round, by age, states and territories, 2000
- Table 38: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, first screening round, states and territories, 2000
- Table 39: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, first screening round, by age, states and territories, 1999
- Table 40: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, first screening round, states and territories, 1999
- Table 41: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, first screening round, by age, states and territories, 1998
- Table 42: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, first screening round, states and territories, 1998
- Table 43: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, first screening round, by age, states and territories, 1997
- Table 44: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, first screening round, states and territories, 1997
- Table 45: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, first screening round, by age, states and territories, 1996
- Table 46: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, first screening round, states and territories, 1996
- Table 47: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 2004
- Table 48: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 2004
- Table 49: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 2003
- Table 50: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 2003
- Table 51: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 2002
- Table 52: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 2002
- Table 53: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 2001

- Table 54: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 2001
- Table 55: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 2000
- Table 56: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 2000
- Table 57: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 1999
- Table 58: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 1999
- Table 59: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 1998
- Table 60: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 1998
- Table 61: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 1997
- Table 62: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 1997
- Table 63: Numbers of women screened and cases of small-diameter ( $\leq 15$  mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 1996
- Table 64: Age-specific rates of small-diameter ( $\leq 15$  mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 1996
- Table 65: Numbers of women screened and cases of invasive cancers detected in these women, first screening round, by age, states and territories, 2004
- Table 66: Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 2004
- Table 67: Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 2003
- Table 68: Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 2003
- Table 69: Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 2002
- Table 70: Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 2002
- Table 71: Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 2001
- Table 72: Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 2001

|           |   |
|-----------|---|
| Table 73: | Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 2000       |
| Table 74: | Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 2000                      |
| Table 75: | Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 1999       |
| Table 76: | Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 1999                      |
| Table 77: | Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 1998       |
| Table 78: | Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 1998                      |
| Table 79: | Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 1997       |
| Table 80: | Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 1997                      |
| Table 81: | Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 1996       |
| Table 82: | Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 1996                      |
| Table 83: | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 2004 |
| Table 84: | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 2004        |
| Table 85: | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 2003 |
| Table 86: | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 2003        |
| Table 87: | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 2002 |
| Table 88: | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 2002        |
| Table 89: | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 2001 |
| Table 90: | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 2001        |
| Table 91: | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 2000 |
| Table 92: | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 2000        |
| Table 93: | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 1999 |

|            |   |
|------------|---|
| Table 94:  | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 1999        |
| Table 95:  | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 1998 |
| Table 96:  | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 1998        |
| Table 97:  | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 1997 |
| Table 98:  | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 1997        |
| Table 99:  | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 1996 |
| Table 100: | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 1996        |

### **Indicator 3a: Interval cancer rate**

|            |  |
|------------|--|
| Table 101: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, first screening round, 0–12 months, states and territories        |
| Table 102: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, first screening round, 13–24 months, states and territories       |
| Table 103: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, first screening round, 0–24 months, states and territories        |
| Table 104: | Numbers and age-specific rates of interval cancers in women screened during 1997, 1998 and 1999, first screening round, 0–12 months, states and territories        |
| Table 105: | Numbers and age-specific rates of interval cancers in women screened during 1997, 1998 and 1999, first screening round, 13–24 months, states and territories       |
| Table 106: | Numbers and age-specific rates of interval cancers in women screened during 1997, 1998 and 1999, first screening round, 0–24 months, states and territories        |
| Table 107: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–12 months, states and territories  |
| Table 108: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, subsequent screening rounds, 13–24 months, states and territories |
| Table 109: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–24 months, states and territories  |
| Table 110: | Numbers and age-specific rates of interval cancers in women screened during 1997, 1998 and 1999, subsequent screening rounds, 0–12 months, states and territories  |
| Table 111: | Numbers and age-specific rates of interval cancers in women screened during 1997, 1998 and 1999, subsequent screening rounds, 13–24 months, states and territories |

Table 112: Numbers and age-specific rates of interval cancers in women screened during 1997, 1998 and 1999, subsequent screening rounds, 0–24 months, states and territories

### **Indicator 3b: Program sensitivity**

Table 113: Program sensitivity rates for women screened during 2000, 2001 and 2002, first screening round, 0–12 months, states and territories

Table 114: Program sensitivity rates for women screened during 2000, 2001 and 2002, first screening round, 0–24 months, states and territories

Table 115: Program sensitivity rates for women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–12 months, states and territories

Table 116: Program sensitivity rates for women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–24 months, states and territories

Table 117: Program sensitivity rates for women screened during 1997, 1998 and 1999, first screening round, 0–12 months, states and territories

Table 118: Program sensitivity rates for women screened during 1997, 1998 and 1999, first screening round, 0–24 months, states and territories

Table 119: Program sensitivity rates for women screened during 1997, 1998 and 1999, subsequent screening rounds, 0–12 months, states and territories

Table 120: Program sensitivity rates for women screened during 1997, 1998 and 1999, subsequent screening rounds, 0–24 months, states and territories

### **Indicator 4: Ductal carcinoma in situ**

Table 121: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 2004

Table 122: Age-specific rate of DCIS detected in women screened, states and territories, first screening round, 2004

Table 123: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 2004

Table 124: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 2004

Table 125: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 2003

Table 126: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 2003

Table 127: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 2003

Table 128: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 2003

Table 129: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 2002

- Table 130: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 2002
- Table 131: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 2002
- Table 132: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 2002
- Table 133: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 2001
- Table 134: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 2001
- Table 135: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 2001
- Table 136: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 2001
- Table 137: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 2000
- Table 138: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 2000
- Table 139: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 2000
- Table 140: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 2000
- Table 141: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 1999
- Table 142: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 1999
- Table 143: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 1999
- Table 144: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 1999
- Table 145: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 1998
- Table 146: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 1998
- Table 147: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 1998
- Table 148: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 1998
- Table 149: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 1997
- Table 150: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 1997

- Table 151: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 1997
- Table 152: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 1997
- Table 153: Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 1996
- Table 154: Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 1996
- Table 155: Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 1996
- Table 156: Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 1996

## **Indicator 5: Recall to assessment rate**

- Table 157: Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 2004
- Table 158: Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 2004
- Table 159: Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 2003
- Table 160: Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 2003
- Table 161: Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 2002
- Table 162: Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 2002
- Table 163: Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 2001
- Table 164: Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 2001
- Table 165: Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 2000
- Table 166: Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 2000
- Table 167: Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 1999
- Table 168: Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 1999
- Table 169: Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 1998
- Table 170: Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 1998

|            |   |
|------------|---|
| Table 171: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 1997       |
| Table 172: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 1997             |
| Table 173: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 1996       |
| Table 174: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 1996             |
| Table 175: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 2004 |
| Table 176: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 2004       |
| Table 177: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 2003 |
| Table 178: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 2003       |
| Table 179: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 2002 |
| Table 180: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 2002       |
| Table 181: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 2001 |
| Table 182: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 2001       |
| Table 183: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 2000 |
| Table 184: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 2000       |
| Table 185: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 1999 |
| Table 186: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 1999       |
| Table 187: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 1998 |
| Table 188: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 1998       |

|            |   |
|------------|---|
| Table 189: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 1997 |
| Table 190: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 1997       |
| Table 191: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 1996 |
| Table 192: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 1996       |
| Table 193: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 2004         |
| Table 194: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 2004               |
| Table 195: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 2003         |
| Table 196: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 2003               |
| Table 197: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 2002         |
| Table 198: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 2002               |
| Table 199: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 2001         |
| Table 200: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 2001               |
| Table 201: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 2000         |
| Table 202: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 2000               |
| Table 203: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 1999         |
| Table 204: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 1999               |
| Table 205: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 1998         |
| Table 206: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 1998               |
| Table 207: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 1997         |
| Table 208: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 1997               |

|            |   |
|------------|---|
| Table 209: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 1996       |
| Table 210: | Age-specific and age-standardised recall to assessment rates, other reasons only, first screening round, states and territories, 1996             |
| Table 211: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 2004 |
| Table 212: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 2004       |
| Table 213: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 2003 |
| Table 214: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 2003       |
| Table 215: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 2002 |
| Table 216: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 2002       |
| Table 217: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 2001 |
| Table 218: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 2001       |
| Table 219: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 2000 |
| Table 220: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 2000       |
| Table 221: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 1999 |
| Table 222: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 1999       |
| Table 223: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 1998 |
| Table 224: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 1998       |
| Table 225: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 1997 |
| Table 226: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 1997       |
| Table 227: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 1996 |
| Table 228: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 1996       |

## Indicator 6: Rescreen rate

- Table 229: Number of women screened during 2002 and number of those women who returned for screening within 27 months by age, first screening round, states and territories
- Table 230: Age-specific and age-standardised rescreen rates for women screened during 2002, first screening round, states and territories
- Table 231: Number of women screened during 2001 and number of those women who returned for screening within 27 months by age, first screening round, states and territories
- Table 232: Age-specific and age-standardised rescreen rates for women screened during 2001, first screening round, states and territories
- Table 233: Number of women screened during 2000 and number of those women who returned for screening within 27 months by age, first screening round, states and territories
- Table 234: Age-specific and age-standardised rescreen rates for women screened during 2000, first screening round, states and territories
- Table 235: Number of women screened during 2002 and number of those women who returned for screening within 27 months by age, second screening round, states and territories
- Table 236: Age-specific and age-standardised rescreen rates in women screened during 2002, second screening round, states and territories
- Table 237: Number of women screened during 2001 and number of those women who returned for screening within 27 months by age, second screening round, states and territories
- Table 238: Age-specific and age-standardised rescreen rates in women screened during 2001, second screening round, states and territories
- Table 239: Number of women screened during 2000 and number of those women who returned for screening within 27 months by age, second screening round, states and territories
- Table 240: Age-specific and age-standardised rescreen rates in women screened during 2000, second screening round, states and territories
- Table 241: Number of women screened during 2002 and number of those women who returned for screening within 27 months by age, third and subsequent screening rounds, states and territories
- Table 242: Age-specific and age-standardised rescreen rates in women screened during 2002, third and subsequent screening rounds, states and territories
- Table 243: Number of women screened during 2001 and number of those women who returned for screening within 27 months by age, third and subsequent screening rounds, states and territories
- Table 244: Age-specific and age-standardised rescreen rates in women screened during 2001, third and subsequent screening rounds, states and territories

Table 245: Number of women screened during 2000 and number of those women who returned for screening within 27 months by age, third and subsequent screening rounds, states and territories

Table 246: Age-specific and age-standardised rescreen rates in women screened during 2000, third and subsequent screening rounds, states and territories

## **Indicator 7a: Incidence of breast cancer**

Table 247: Number of new cases of breast cancer in women by age, Australia, 1989–2003

Table 248: Age-specific and age-standardised incidence rates for breast cancer in women, Australia, 1989–2003

Table 249: Number of new cases of breast cancer in women by age, states and territories, 1999–2003

Table 250: Age-specific and age-standardised incidence rates for breast cancer in women, states and territories, 1999–2003

Table 251: Number of new cases of breast cancer in women by age, states and territories, 1994–1998

Table 252: Age-specific and age-standardised incidence rates for breast cancer in women, states and territories, 1994–1998

Table 253: Number of new cases of breast cancer in women, by age and region, 1999–2003

Table 254: Age-specific and age-standardised incidence rates for breast cancer in women by region, 1999–2003

Table 255: Number of new cases of breast cancer in women, by age and region, 1994–1998

Table 256: Age-specific and age-standardised incidence rates for breast cancer in women by region, 1994–1998

## **Indicator 7b: Incidence of ductal carcinoma in situ**

Table 257: Number of new cases of ductal carcinoma in situ by age, states and territories, 1999–2003

Table 258: Age-specific and age-standardised rates of ductal carcinoma in situ, states and territories, 1999–2003

Table 259: Number of new cases of ductal carcinoma in situ by age, states and territories, 1994–1998

Table 260: Age-specific and age-standardised rates of ductal carcinoma in situ, states and territories, 1994–1998

Table 261: Number of new cases of ductal carcinoma in situ Australia, 1993–2003

Table 262: Age-specific and age-standardised rates of ductal carcinoma in situ, Australia, 1993–2003

## Indicator 8: Mortality

- Table 263: Number of deaths from breast cancer in women, Australia, 1990–2004
- Table 264: Age-specific and age-standardised mortality rates for breast cancer in women, Australia, 1990–2004
- Table 265: Number of deaths from breast cancer in women by age, states and territories, 2000–2004
- Table 266: Age-specific and age-standardised mortality rates for breast cancer in women, states and territories, 2000–2004
- Table 267: Number of deaths from breast cancer in women by age, states and territories, 1995–1999
- Table 268: Age-specific and age-standardised mortality rates for breast cancer in women, states and territories, 1995–1999
- Table 269: Number of deaths from breast cancer in women by age and region, 2000–2004
- Table 270: Age-specific and age-standardised mortality rates for breast cancer in women by region, 2000–2004
- Table 271: Number of deaths from breast cancer in women by age and Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 2000–2004
- Table 272: Age-standardised and age-specific mortality rates for breast cancer in women by Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 2000–2004
- Table 273: Number of deaths from breast cancer in women by age and Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 1995–1999
- Table 274: Age-standardised and age-specific mortality rates for breast cancer in women by Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 1995–1999

# Appendix C: BreastScreen Australia state programs contact list

## New South Wales

Mr Mark Costello  
Operations Manager  
BreastScreen NSW  
PO Box 41  
ALEXANDRIA NSW 1435  
Phone: +61 2 8374 5758  
Email: mark.costello@cancerinstitute.org.au  
Home page: www.bsnsw.org.au

## Victoria

Ms Onella Stagoll  
Director BreastScreen Vic  
PO Box 161  
CARLTON SOUTH VIC 3053  
Phone: +61 03 9660 6889  
or Dept: +61 03 9616 8412  
Fax: +61 3 9662 3881  
Email: onellas@breastscreen.org.au  
Home page: www.breastscreen.org.au

## Queensland

Ms Jennifer Muller  
Director  
Women's Cancer Screening Services  
Queensland Health  
GPO Box 48  
BRISBANE Qld 4001  
Phone: +61 7 3234 0905  
Fax: +61 7 3225 2629  
Email: jennifer\_muller@health.qld.gov.au  
Home page:  
ww.health.qld.gov.au/breastscreen

## Western Australia

Dr Liz Wylie  
Medical Director  
BreastScreen WA  
9th Floor, Eastpoint Plaza  
233 Adelaide Terrace  
PERTH WA 6000  
Phone: +61 8 9323 6900  
Fax: +61 8 9325 1033  
Email: Liz.Wylie@health.wa.gov.au

## Tasmania

Ms Gail Raw  
Program Manager BreastScreen Tas  
Department of Health  
GPO Box 125B  
HOBART TAS 7001  
Phone: +61 3 6230 7749  
(General No. 6230 7748)  
Fax: +61 3 6230 7774  
Email: gail.raw@dhhs.tas.gov.au  
Home page: www.dchs.tas.gov.au

## South Australia

Ms Lou Williamson  
Director BreastScreen SA  
1 Goodwood Road  
WAYVILLE SA 5006  
Phone: +61 8 8300 1801  
Fax: +61 8 8373 4395  
Email: lou.williamson@health.sa.gov.au  
Home page: www.breastscreensa.sa.gov.au

**Australian Capital Territory**

Ms Helen Sutherland  
Director  
BreastScreen ACT & SE NSW  
ACT Dept of Health & Community Care  
GPO Box 825  
CANBERRA ACT 2601  
Phone: +61 2 6205 1540  
Fax: +61 2 6205 1394  
Email: [helen.sutherland@act.gov.au](mailto:helen.sutherland@act.gov.au)  
Home page:  
[www.communitycare.act.gov.au/womens/  
breastscreen/](http://www.communitycare.act.gov.au/womens/breastscreen/)

**Northern Territory**

Ms Chris Tyzack  
Manager  
Well Women's Cancer Screening  
Dept of Health & Community Services  
GPO Box 40596  
CASUARINA NT 0811  
Phone: +61 8 8922 6445  
Fax: +61 8 8922 6440  
Email: [chris.tyzack@nt.gov.au](mailto:chris.tyzack@nt.gov.au)

**Australian Government Department of Health and Ageing**

Ms Julianne Quaine  
Director  
Screening Section  
Department of Health and Ageing  
MDP 13  
GPO Box 9848  
CANBERRA ACT 2601  
Phone: +61 2 6289 8302  
Fax: 61 2 6289 4021  
Home page: [www.cancerscreening.gov.au](http://www.cancerscreening.gov.au)

# Glossary

**Administrative databases:** observations about events that are routinely recorded or required by law to be recorded. Such events include births, deaths, hospital separations and cancer incidence. Administrative databases include the National Mortality Database, the National Hospital Morbidity Database and the National Cancer Statistics Clearing House Database.

**Age-specific rate:** a rate for a specific age group. The numerator and denominator relate to the same age group.

**Age-standardised rate:** weighted average of age-specific rates according to a standard distribution of the population by age to eliminate the effect of different age distributions and thus facilitate valid comparison of groups with differing age compositions.

**Assessment:** further investigation of a mammographic abnormality or symptom reported at screening. This includes women who choose assessment outside the program.

**Benign:** not cancerous.

**Cancer (malignant neoplasm):** a term used to describe one of several diseases that result when the process of cell division, by which tissues normally grow and renew themselves, becomes uncontrolled and leads to the development of malignant cells. These cancer cells multiply in an uncoordinated way, independently of normal growth control mechanisms, to form a tumour. The tumour can expand locally by invasion or systemically by metastasis via the lymphatic or vascular systems. If left untreated, most malignant tumours eventually result in death.

**Cancer death:** a death where the underlying cause is indicated as cancer. People with cancer who died of other causes are not counted in the death statistics in this publication.

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

**Core biopsy:** removal of a cylindrical sample of breast tissue under a local or general anaesthetic through a needle for microscopic examination.

**Data:** refers to the building blocks of health information, including observations from administrative databases and health survey data sets.

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

**Early review:** the recall of a woman to a second assessment within 12 months of the screening date and following an equivocal assessment visit. Early review within 6 months of the screening date is considered part of the screening episode, but early review at 6 months or more occurs after the screening episode is complete.

**Epidemiology:** the quantitative study of the distribution and determinants of health-related states and events in populations and the application of this study to the control of health problems.

**False negative:** means that the test has incorrectly observed that the disease is not present.

**False positive:** means that the test has incorrectly observed that the disease is present.

**Film reading:** viewing of a radiographic depiction of the breast (a mammogram) to determine the presence or absence of an abnormality indicative of a tumour.

**Fine needle aspiration biopsy:** the sampling of cells from breast tissue for examination by a pathologist.

**First screening round:** see *Screening round*.

**Incidence:** see *New cancer case*.

**Index screening year:** the year for which the interval cancer rate and the program sensitivity rate are determined.

**Index screens:** all screening examinations performed within the index screening year.

**Indicators:** observations about data that have been analysed to provide a means of comparing measures of health within and between population groups.

**Indigenous:** a person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander and is accepted as such by the community with which he or she is associated.

**Information:** observations about data that have been analysed to provide a means of comparing measures of health within and between population groups.

**International Classification of Diseases:** World Health Organization's internationally accepted classification of death and disease. The tenth revision (ICD-10) is currently in use.

**Interval cancer – invasive** (as defined for national reporting purposes by Kavanagh et al. 1999, with minor changes pending endorsement by the National Advisory Committee):

- an invasive breast cancer diagnosed after completion of a negative screening episode and before the next screening examination (within 24 months from the date of the previous screen)
- a case of invasive breast cancer that is 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
- breast cancer diagnosed in a woman by BreastScreen Australia within 24 months of a negative screen (early rescreen) if the woman presents with a breast lump and/or clear or blood-stained nipple discharge in the breast in which the breast cancer was diagnosed, or
- an invasive breast cancer diagnosed between six and 24 months after a recommendation for assessment is made and a woman fails to attend assessment.

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

**Lymph node:** masses of lymphatic tissue, often bean-shaped, that produce lymphocytes and through which lymph filters. These are located throughout the body.

**Mammogram:** a radiographic depiction of the breast.

**Metastasis:** the process by which a disease is transferred from one part of the body to another – for example, via the lymphatic system or the bloodstream.

**Mortality:** see *Cancer death*.

**New cancer case:** a person who has a new cancer diagnosed for the first time. One person can have more than one cancer and therefore may be counted twice in incidence statistics if it is decided that the two cancers are not of the same origin. This decision is based on a series of principles set out in more detail in a publication by (Jensen et al. 1991).

**Next scheduled screening examination:** 24 months after previous screen unless the woman is recommended for annual rescreening, when the next scheduled screening examination is 12 months.

**Population estimates:** official population numbers compiled by the Australian Bureau of Statistics at both state and territory and statistical local area levels by age and sex, as at 30 June each year. These estimates allow comparisons to be made between geographic areas of differing population sizes and age structures.

**Prevalence:** the number of instances of a specific disease or other condition in a given population at a designated time.

**Recruitment:** strategies that aim to promote participation of women in the BreastScreen Australia Program through direct contact with women in the target age group and education of health practitioners and the general public. Women are encouraged to attend every two years.

**Rescreening:** the next screening examination after the screening episode in the index screening year.

**Risk factor:** an attribute or exposure that is associated with an increased probability of a specified outcome, such as the occurrence of a disease. Risk factors are not necessarily the causes of disease.

**Screening:** the performance of tests on apparently well people in order to detect a medical condition at an earlier stage than would otherwise be the case. As a screening test is not intended to be diagnostic, a person with a positive or suspicious result must be referred for diagnosis and treatment.

**Screening episode:** a screening episode includes all attendances for screening and assessment within 6 months relating to a particular round of screening. It commences at the date of attendance for screening. It is completed when:

- (i) a recommendation is made to return the woman to routine rescreening
- (ii) a recommendation is made for early review at 6 months or more from the screening date
- (iii) a diagnosis of cancer is made
- (iv) the woman fails to attend for technical recall or assessment within 6 months
- (v) the woman dies.

**Screening round:** the first screening round is a woman's first visit to a mammography screening service; a subsequent screening round means that she has been screened before. If she attends for the fourth screening round, she has been screened three times before.

**Screening round (first):** a woman's first visit to a BreastScreen Australia mammography screening service.

**Screening round (subsequent):** a woman's visit to a BreastScreen Australia mammography screening service when she has attended such a service before.

**Sensitivity:** the proportion of people with a disease who have a positive test result for the disease.

**Significant difference:** where rates are referred to as significantly different, or one rate is deemed significantly higher or lower than another, these differences are statistically significant. Rates are deemed statistically significantly different when their confidence

intervals do not overlap, since their difference is greater than what could be explained by chance. See 'confidence intervals' in Appendix A for more information.

**Symptom:** any evidence of disease apparent to the patient. For the purposes of this report, symptoms refer to a self-reported breast lump and/or blood-stained or watery nipple discharge.

**Ultrasound:** diagnostic method based on the reflection of ultrasonic sound waves generated through scanning of, in this case, the breast. The reflections are viewed on a computer screen or photograph and checked for variations in images.

**Unit record file:** observations containing person-specific records from health surveys and administrative databases that are unanalysed and not tabulated. This is the most basic form of data and cannot be accessed for general use without appropriate confidentiality measures being in place.

**Women-years 'at risk' of interval or screen-detected breast cancer are:**

- all women screened aged 50–69 years who are resident in the service catchment area in which they are screened at the time of screening who have not reported a personal history of invasive cancer or DCIS
- women who are recommended for annual rescreening are only at risk of interval cancer up until 12 months after the screening examination
- women who are recommended for routine rescreening are only at risk of an interval cancer up until 24 months after the screening examination.

# References

- ABS (Australian Bureau of Statistics) 2001. ABS views on remoteness. Information paper. ABS Cat. no. 1244.0. Canberra: ABS.
- ABS (Australian Bureau of Statistics) 2002. Causes of death, Australia 2000. Cat. no. 3303.0. Canberra: ABS.
- ABS (Australian Bureau of Statistics) 2004. Experimental estimates and projections, Aboriginal and Torres Strait Islander Australians. Cat. no. 3238.0. Canberra: Australian Government Publishing Service.
- AIHW (Australian Institute of Health and welfare) & DoHA (Department of Health and Ageing) forthcoming. BreastScreen Australia Data Dictionary.
- BreastScreen Queensland 2005. A decade of achievement 1991–2001. Brisbane: BreastScreen Queensland.
- BreastScreen South Australia 2005. BreastScreen SA: 2001 and 2002 statistical report. Adelaide: BreastScreen South Australia.
- BSANAC BreastScreen Australia National Advisory Committee) & DHAC (Department of Health and Aged Care) 2000. BreastScreen Australia Evaluation Plan Phase II. Canberra: Commonwealth of Australia.
- Day N 1991. Screening for breast cancer. *British Medical Bulletin* 47:400-15.
- DHSH (Commonwealth Department of Human Services and Health) 1994. National Program for the Early Detection of Breast Cancer—minimum data set: for screening and assessment services. Canberra: Australian Government Publishing Service.
- Dobson AJ, Kuulasmaa K, Eberle E & Scherer J 1991. Confidence intervals for weighted sums of Poisson parameters. *Statistics in Medicine* 10:457-62.
- DPIE (Commonwealth Department of Primary Industries and Energy) & DHSH (Commonwealth Department of Human Services and Health) 1994. Rural, remote and metropolitan areas classification: 1991 Census edition. Canberra: Australian Government Publishing Service.
- Duffy S, Tabar L, Fagerberg G, Gad A, Grontoft O, South M et al. 1991. Breast Screening, prognostic facts and survival—results from the Swedish Two-Country Study. *British Journal of Cancer* 64:1133-38.
- Feig S 1998. Decreased breast cancer mortality through mammographic screening: results in clinical trials. *Radiology* 167:659-65.
- Fletcher S, Black W, Harris R, Rimer V & Shapiro S 1993. Report on the International Workshop on Screening for Breast Cancer. *Journal of the National Cancer Institute* 85:1644-56.
- Jensen O, Parkin D, MacLennan R, Muir C & Skeet R (eds) 1991. *Cancer registration: principles and methods*. Lyon: International Agency for Research on Cancer.
- Kavanagh A, Amos A & Marr G 1999. The ascertainment and reporting of interval cancers within the BreastScreen Australia Program. Sydney: NHMRC National Breast Cancer Centre.

NQMC (National Quality Management Committee of BreastScreen Australia) 2004.  
BreastScreen Australia National Accreditation Standards: BreastScreen Australia Quality Improvement Program.

O'Shaughnessy J A 2000. Treating breast precancer. Clinical Breast Cancer 1 Suppl:S74-9.

# List of tables

|           |  |    |
|-----------|--|----|
| Table 1:  | Number of women participating in BreastScreen Australia by age, states and territories, 2003–2004.....   | 76 |
| Table 2:  | Percentage of women participating in BreastScreen Australia, states and territories, 2003–2004.....  | 77 |
| Table 3:  | Participation in BreastScreen Australia by age and region, 2003–2004 .....   | 78 |
| Table 4:  | Participation in BreastScreen Australia by age and socioeconomic status, 2003–2004 .....   | 79 |
| Table 5:  | Participation in BreastScreen Australia by age and Indigenous status, 2003–2004 .....  | 80 |
| Table 6:  | Participation in BreastScreen Australia by age and main language spoken at home, 2003–2004.....  | 81 |
| Table 7:  | Numbers of women screened and cases of small-diameter ( $\leq 15$ mm) invasive cancers detected in these women, first screening round, by age, states and territories, 2004.....       | 82 |
| Table 8:  | Age-specific rates of small-diameter ( $\leq 15$ mm) invasive cancers detected in women screened, first screening round, states and territories, 2004.....                             | 83 |
| Table 9:  | Numbers of women screened and cases of small-diameter ( $\leq 15$ mm) invasive cancers detected in these women, subsequent screening rounds, by age, states and territories, 2004..... | 84 |
| Table 10: | Age-specific rates of small-diameter ( $\leq 15$ mm) invasive cancers detected in women screened, subsequent screening rounds, states and territories, 2004.....                       | 85 |
| Table 11: | Numbers of women screened and cases of invasive cancer detected in these women, first screening round, by age, states and territories, 2004.....                                       | 86 |
| Table 12: | Age-specific rates of invasive breast cancers per 10,000 women screened, first screening round, states and territories, 2004.....  | 87 |
| Table 13: | Numbers of women screened and cases of invasive cancer detected in these women, subsequent screening rounds, by age, states and territories, 2004.....                                 | 88 |
| Table 14: | Age-specific rates of invasive breast cancers per 10,000 women screened, subsequent screening rounds, by age, states and territories, 2004.....  | 89 |
| Table 15: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, first screening round, 0–12 months, states and territories .....                      | 90 |
| Table 16: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, first screening round, 13–24 months, states and territories .....                     | 91 |
| Table 17: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, first screening round, 0–24 months, states and territories .....                      | 92 |
| Table 18: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–12 months, states and territories .....                | 93 |
| Table 19: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, subsequent screening rounds, 13–24 months, states and territories .....               | 94 |
| Table 20: | Numbers and age-specific rates of interval cancers in women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–24 months, states and territories .....                | 95 |
| Table 21: | Program sensitivity rates for women screened during 2000, 2001 and 2002, first screening round, 0–12 months, states and territories.....   | 96 |
| Table 22: | Program sensitivity rates for women screened during 2000, 2001 and 2002, first screening round, 0–24 months, states and territories.....   | 96 |

|           |   |     |
|-----------|---|-----|
| Table 23: | Program sensitivity rates for women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–12 months, states and territories .....                                       | 97  |
| Table 24: | Program sensitivity rates for women screened during 2000, 2001 and 2002, subsequent screening rounds, 0–24 months, states and territories .....                                       | 97  |
| Table 25: | Number of women screened and cases of DCIS detected in these women by age, first screening round, states and territories, 2004 .....  | 98  |
| Table 26: | Age-specific rate of DCIS detected in women screened, first screening round, states and territories, 2004 .....   | 98  |
| Table 27: | Number of women screened and cases of DCIS detected in these women by age, subsequent screening rounds, states and territories, 2004 .....  | 99  |
| Table 28: | Age-specific rate of DCIS detected in women screened, subsequent screening rounds, states and territories, 2004.....  | 99  |
| Table 29: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, first screening round, states and territories, 2004.....                                    | 100 |
| Table 30: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, first screening round, states and territories, 2004 .....   | 101 |
| Table 31: | Numbers of women screened and women recalled for assessment by age, mammographic reasons, subsequent screening rounds, states and territories, 2004 .....                             | 102 |
| Table 32: | Age-specific and age-standardised recall to assessment rates, mammographic reasons, subsequent screening rounds, states and territories, 2004 .....                                   | 103 |
| Table 33: | Numbers of women screened and women recalled for assessment by age, other reasons only, first screening round, states and territories, 2004 .....                                     | 104 |
| Table 34: | Age-specific and age-standardised recall to assessment rates, first screening round, other reasons only, states and territories, 2004 .....   | 105 |
| Table 35: | Numbers of women screened and women recalled for assessment by age, other reasons only, subsequent screening rounds, states and territories, 2004.....                                | 106 |
| Table 36: | Age-specific and age-standardised recall to assessment rates, other reasons only, subsequent screening rounds, states and territories, 2004 .....                                     | 107 |
| Table 37: | Number of women screened during 2002 and number of those women who returned for screening within 27 months by age, first screening round, states and territories.....                 | 108 |
| Table 38: | Age-specific and age-standardised rescreen rates for women screened during 2002, first screening round, states and territories .....  | 109 |
| Table 39: | Number of women screened during 2002 and number of those women who returned for screening within 27 months by age, second screening round, states and territories.....                | 110 |
| Table 40: | Age-specific and age-standardised rescreen rates in women screened during 2002, second screening round, states and territories.....   | 111 |
| Table 41: | Number of women screened during 2002 and number of those women who returned for screening within 27 months by age, third and subsequent screening rounds, states and territories..... | 112 |
| Table 42: | Age-specific and age-standardised rescreen rates in women screened during 2002, third and subsequent screening rounds, states and territories.....                                    | 113 |
| Table 43: | Number of new cases of breast cancer in women by age, Australia, 1989–2003.....   | 114 |
| Table 44: | Age-specific and age-standardised incidence rates for breast cancer in women, Australia, 1989–2003 .....  | 115 |
| Table 45: | Number of new cases of breast cancer in women by age, states and territories, 1999–2003.....  | 116 |

|   |     |
|---|-----|
| Table 46: Age-specific and age-standardised incidence rates for breast cancer in women, states and territories, 1999–2003.....  | 117 |
| Table 47: Number of new cases of breast cancer in women, by age and region, 1999–2003.....  | 118 |
| Table 48: Age-specific and age-standardised incidence rates for breast cancer in women by region, 1999–2003.....  | 119 |
| Table 49: Number of new cases of ductal carcinoma in situ by age, states and territories, 1999–2003.....  | 120 |
| Table 50: Age-specific and age-standardised rates of ductal carcinoma in situ, states and territories, 1999–2003.....   | 120 |
| Table 51: Number of new cases of ductal carcinoma in situ, Australia, 1993–2003.....  | 121 |
| Table 52: Age-specific and age-standardised rates of ductal carcinoma in situ, Australia, 1993–2003.....  | 121 |
| Table 53: Number of deaths from breast cancer in women, Australia, 1990–2004.....   | 122 |
| Table 54: Age-specific and age-standardised mortality rates for breast cancer in women, Australia, 1990–2004.....   | 123 |
| Table 55: Number of deaths from breast cancer in women by age, states and territories, 2000–2004.....   | 124 |
| Table 56: Age-specific and age-standardised mortality rates for breast cancer in women, states and territories, 2000–2004.....  | 125 |
| Table 57: Number of deaths from breast cancer in women by age and region, 2000–2004.....  | 126 |
| Table 58: Age-specific and age-standardised mortality rates for breast cancer in women by region, 2000–2004.....  | 127 |
| Table 59: Number of deaths from breast cancer in women by age and Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 2000–2004.....                         | 128 |
| Table 60: Age-standardised and age-specific mortality rates for breast cancer in women by Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 2000–2004..... | 129 |
| Table A1: Sources for data presented in this report.....  | 130 |
| Table A2: The remoteness areas for the ASGC Remoteness Classification.....  | 133 |

# List of figures

|   |    |
|---|----|
| Participation of women aged 50–69 years in BreastScreen Australia, 1998–1999, 2001–2002 and 2003–2004 .....   | 3  |
| Participation of women aged 50–69 years in BreastScreen Australia, 1996–1997 to 2003–2004 .....   | 5  |
| Participation of women aged 50–69 years in BreastScreen Australia by region, 1998–1999, 2001–2002 and 2003–2004.....  | 6  |
| Participation of women aged 50–69 years in BreastScreen Australia by socioeconomic status, 1998–1999, 2001–2002 and 2003–2004.....  | 7  |
| Participation of women aged 50–69 years in BreastScreen Australia by Indigenous status, 1998–1999, 2001–2002 and 2003–2004.....   | 8  |
| Participation of women aged 50–69 years in BreastScreen Australia by language spoken at home, 1998–1999, 2001–2002 and 2003–2004.....                                       | 10 |
| Age distribution of women aged 40 years and over screened by BreastScreen Australia, 1998–1999, 2001–2002 and 2003–2004.....  | 12 |
| Small ( $\leq 15$ mm) invasive breast cancer detection in women aged 50–69 years, first screening round, 1999, 2003 and 2004.....   | 15 |
| Small ( $\leq 15$ mm) invasive breast cancer detection in women aged 50–69 years, subsequent screening rounds, 1999, 2003 and 2004.....                                     | 16 |
| Small ( $\leq 15$ mm) invasive breast cancer detection in women aged 50–69 years, first and subsequent screening rounds, 1996–2004.....                                     | 17 |
| Small ( $\leq 15$ mm) invasive breast cancer detection by age, 2004.....  | 18 |
| Small ( $\leq 15$ mm) invasive breast cancer detection by age, 2003.....  | 19 |
| Small ( $\leq 15$ mm) invasive breast cancer detection by age, 1999.....  | 20 |
| All-size invasive breast cancer detection in women aged 50–69 years, first screening round, 1999, 2003 and 2004.....  | 21 |
| All-size invasive breast cancer detection in women aged 50–69 years, subsequent screening rounds, 1999, 2003 and 2004.....  | 22 |
| All-size invasive breast cancer detection in women aged 50–69 years, first and subsequent screening rounds, 1996–2004.....  | 24 |
| Interval cancer rate for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, first screening round, 0–12 months follow-up.....       | 28 |
| Interval cancer rate for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, first screening round, 0–24 months follow-up.....       | 29 |
| Interval cancer rate for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, subsequent screening rounds, 0–12 months follow-up..... | 31 |
| Interval cancer rate for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, subsequent screening rounds, 0–24 months follow-up..... | 33 |
| Program sensitivity for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, first screening round, 0–12 months follow-up.....        | 34 |
| Program sensitivity for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, first screening round, 0–24 months follow-up.....        | 35 |
| Program sensitivity for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, subsequent screening rounds, 0–12 months follow-up.....  | 36 |

|  |    |
|--|----|
| Program sensitivity for women aged 50–69 years, screened during index years 1997, 1998, 1999 and 2000, 2001, 2002, subsequent screening rounds, 0–24 months follow-up..... | 37 |
| Ductal carcinoma in situ detection in women aged 50–69 years, all screening rounds, 1996–2004.....   | 41 |
| Ductal carcinoma in situ detection in women aged 50–69 years, first screening round, 1999, 2003 and 2004.....  | 42 |
| Ductal carcinoma in situ detection in women aged 50–69 years, second or subsequent screening rounds, 1999, 2003 and 2004.....  | 43 |
| Recall to assessment rate for women aged 50–69 years, mammographic reasons, first screening round, 1999, 2003 and 2004.....  | 46 |
| Recall to assessment rate for women aged 50–69 years, mammographic reasons, subsequent screening rounds, 1999, 2003 and 2004.....  | 47 |
| Recall to assessment trends for women aged 50–69 years, mammographic reasons, first and subsequent screening rounds, 1996 to 2004.....                                     | 48 |
| Rescreen rate for women aged 50–67 years, screened during 2001 and 2002, first screening round.....  | 51 |
| Rescreen rate for women aged 50–67 years, screened during 2001 and 2002, second screening round.....   | 52 |
| Rescreen rate for women aged 50–67 years, screened during 2001 and 2002, third and subsequent screening rounds.....  | 53 |
| Incidence of breast cancer in women, Australia, 1989–2003.....   | 56 |
| Incidence of breast cancer in women aged 50–69 years, 1994–1998 and 1999–2003.....   | 57 |
| Age-specific incidence rates for breast cancer in women, Australia, 1998, 2002 and 2003.....   | 59 |
| Incidence of breast cancer in women aged 50–69 years, by region, 1994–1998 and 1999–2003.....  | 60 |
| Incidence of ductal carcinoma in situ in women aged 50–69 years, 1994–1998 and 1999–2003.....  | 61 |
| Incidence of ductal carcinoma in situ in women aged 50–69 years, 1993–2003.....  | 62 |
| Mortality from breast cancer, females, Australia, 1990–2004.....   | 66 |
| Mortality from breast cancer in women aged 50–69 years, 1995–1999 and 2000–2004.....   | 67 |
| Age-specific mortality rates for breast cancer, females, Australia, 1994, 1999 and 2004.....   | 68 |
| Mortality from breast cancer by region, females aged 50–69 years, 2000–2004.....   | 69 |
| Mortality from breast cancer by region, females all ages, 2000–2004.....   | 70 |
| Mortality from breast cancer by Indigenous status, females aged 50–69 years, 1995–1999 and 2000–2004.....  | 71 |
| Mortality from breast cancer by Indigenous status, females all ages, 1995–1999 and 2000–2004.....  | 73 |