

# The development of performance indicators for hospital breast services in Victoria

October 2004

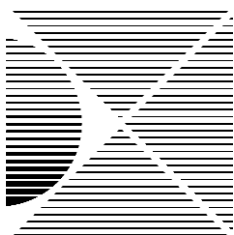


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## Acknowledgement

BreastScreen Victoria was commissioned by the Department of Human Services to undertake the development of the performance indicators for this project.



**BreastScreen**  
**VICTORIA**

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## Foreword

In 2001, the Victorian Department of Human Services commissioned the development of a set of performance indicators for public hospital breast services. This was identified as one of nine key action areas in the Breast Disease Service Redevelopment Strategy (1999) aimed at enhancing services for women with breast disease. BreastScreen Victoria, the successful tenderer, has produced a set of ten indicators which are described in this report.

This report represents the culmination of more than two years work to which many people have contributed their time, energy and ideas. The project would not have been possible without those consumers and clinicians who participated in the many committees and working parties to consider issues of quality in breast service delivery and to develop and refine the performance measures reflecting these issues. This commitment and enthusiasm was mirrored by Breast Service Enhancement Program staff throughout Victoria and also in the public hospitals involved in the pilot testing of the draft indicators in early 2003. This stakeholder involvement has been crucial to the success of this project.

The purpose of this report is to provide health care providers with a clear understanding of the principles and processes underpinning the development of the indicators and to detail the results of the pilot data collection and the key learnings from the project. The next step in the development of these performance indicators is to trial the implementation of these measures in hospital breast services. Evaluating the indicators through analysis, feedback and assessment of their use in quality improvement activities will determine their value in the continuous improvement of clinical care. This process, along with the development of standards to support the indicators, commenced in January 2004 and is due for completion in August 2005.

Learnings from this project about the measurement of quality in cancer care, burden of collection, and indicator worth will also provide valuable information to assist the development of a quality framework for cancer care in Victoria. A key requirement of the Cancer Services Framework for Victoria, launched in November 2003, is the designation of health services based on their capacity to meet standards of care for specific tumours. Performance indicators and standards, along with the associated reflection on practice and continuous improvement, support the achievement of high quality, safe and effective care. The lessons learned from the Development of Performance Indicators for Hospital Breast Services Project provide a basis for developing and implementing indicators and have identified key issues for consideration in establishing a quality framework for cancer care in Victoria.



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## Executive summary

The need for a coordinated approach to performance monitoring and evaluation was identified as a strong priority in the Victorian Department of Human Services' Breast Disease Service Redevelopment Strategy, which was formulated in 1999. Developing a set of performance indicators for public hospital breast services is one of the key action areas of this strategy.

Underpinning this action area has been an emphasis on a stakeholder-driven approach and the need for measures that reflect women's needs. To ensure this, the project team consulted widely and worked closely with clinicians and consumers in a series of working parties which initially addressed the diagnosis, treatment and follow-up of patients with breast disease. Other principles underpinning the work were that the indicators should have the potential to improve the process and outcome of care and should support monitoring against best practice.

Ninety quality issues were initially identified, but the subsequent processes of assessment against key attributes of a robust indicator and refinement resulted in 20 indicators considered suitable for pilot testing. This process, conducted in 12 public hospitals over a three-month period in 2003, provided invaluable information on which to base a reassessment of the indicators for the attributes of data value, content validity, responsiveness and value at the service level.

In light of the pilot testing findings, the draft indicators were reassessed and also considered for their spread across the continuum of care and their coverage of the domains of quality. A proposed set of ten indicators was developed, covering the areas of timeliness, breast care nurse contact, complete pathology reporting, multidisciplinary care, referrals to medical and radiation oncology, communication with general practitioners and complications of treatment.

Among the areas of importance to women and clinicians were a number of issues that were not amenable to indicator development. In particular, performance indicators relating to advanced disease were constrained by the lack of routine recording of advanced disease status in hospital systems. Similarly, measuring outcomes, such as local recurrence rates, could contribute significantly to assessments of quality, but is not feasible with current information systems. Finally, the variety of models for care provision and the movement of patients between private and public facilities pose significant challenges for assessing quality of care at the patient level. A number of issues which were identified as being integral to the quality of care but not amenable to indicator development were referred to BreastCare Victoria for possible attention through other strategies.

Concern about the burden of data collection for 'yet another set of performance indicators' is commonly stated. Experience gained from this project indicates data system limitations form the basis of this level of burden. These information systems, designed principally to provide data for management and funding purposes, lack the breadth and depth to meet clinical and quality management information needs. If the current quality improvement movement within health services is to gain further momentum from using performance measures, then the burden of collection and the role of hospital information systems in this area must be addressed.

The keys to success for this project were stakeholder involvement, a focus on service level improvement, robust criteria to guide the decision making process (such as domains of quality, performance indicator attributes and evidence-based guidelines), and provision of support for local data collection and reporting by visits, question-and-answer email groups and data user group meetings. These elements can be applied to the development of a quality framework in other areas of cancer care.



## The project

### The project brief

In July 2001, the Department of Human Services invited submissions for a project to work collaboratively with BreastCare Victoria (known as the Cancer Coordination Unit since October 2003), hospitals, clinicians and consumers to develop a set of clinical and process performance indicators for public hospital breast services which are:

- valid, reliable, feasible, measurable and meaningful
- inclusive of care components with a potential for improved process or outcomes
- underpinned by best practice principles in breast care and supportive of monitoring against agreed best practice principles
- developed through a stakeholder-driven process to engender ownership of and responsibility for outcomes by all stakeholders
- representative of and responsive to the needs of women
- able to support wider aims, such as the streamlining of patient care, service planning and management, quality improvement and monitoring and evaluation.

BreastScreen Victoria Incorporated was the successful tenderer. BreastScreen Victoria oversees the operation of the Victorian breast cancer screening program. It has gained expertise and experience in health information management, service delivery and quality improvement over 11 years of delivering and monitoring what is regarded as a high quality population-based breast cancer screening program. A commitment to consumer participation in health care planning and decision making underpins BreastScreen Victoria's approach and also the approach taken to this project.

Coopted project team members have provided additional expertise in indicator development, epidemiology and consumer representation and advocacy. Project team members are listed at Appendix A.

### A summary of project principles and methods

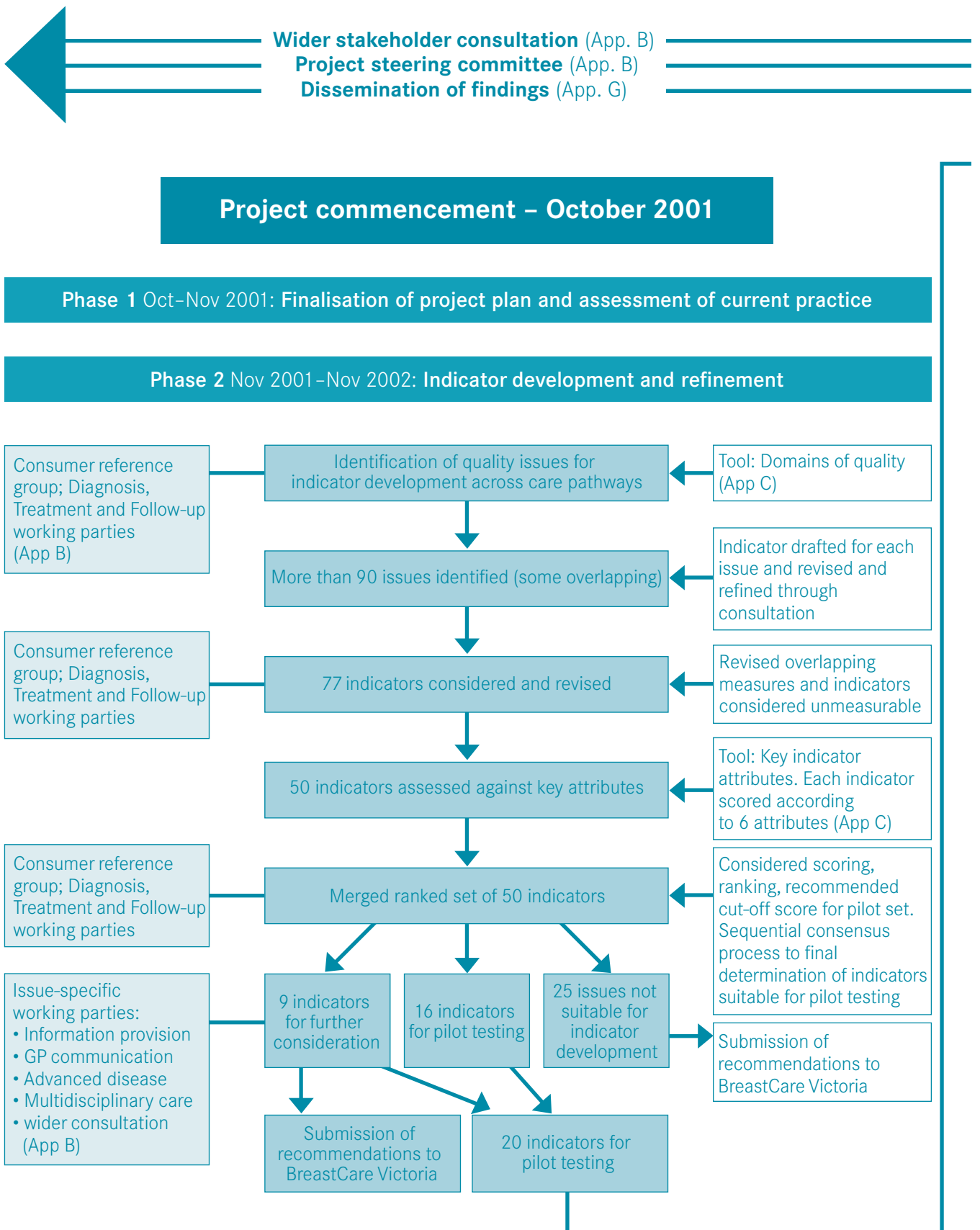
Drawing from the experience of stakeholders in the field and the literature, a method and approach was developed which addressed the key areas considered to be essential to the successful development and implementation of a set of performance measures for quality improvement. The following principles underpinned the project approach:

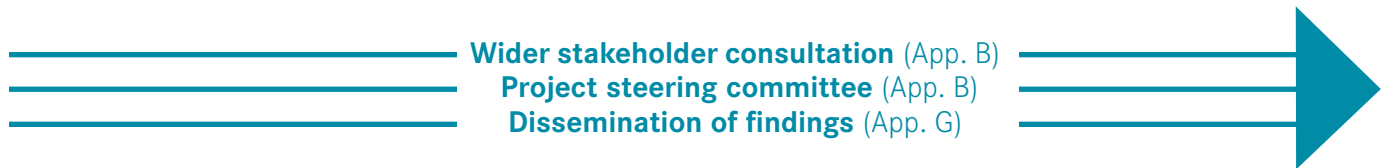
- **stakeholder involvement.** The project team facilitated a process in which stakeholders developed and refined the indicators through a series of consultative workshops and forums. These stakeholders were representative of a broad range of clinical and non-clinical expertise within the hospital and community sectors with strong and sustained consumer input at all phases and levels of the project. In addition, and in recognition of the unique issues for patients, clinicians and services in rural areas, the project team placed a focus on ensuring adequate representation of rural stakeholders in all project committees
- **tools.** The project team used tools to guide the development and refinement of indicators, domains of quality and key indicator attributes
- **project scope.** The project team took a broad focus, which did not limit the development of measures according to local service delivery patterns, but focused on issues from the perspective of the consumer and the entire continuum of care and the spectrum of breast disease
- **service improvement.** It was the intention from the outset that these performance indicators would contribute to improvements in service delivery through their development as a tool for service level quality improvement
- **data collection.** The project maintained a balance between burden of collection and value of each measure as a tool for quality improvement and provided support for data collection
- **limitations of performance indicators.** The project team recognised that not all issues of importance would be suitable for measurement as performance indicators. It was the project team's responsibility to explore and refer quality issues of importance arising throughout the project that were not developed into measures
- **communication.** Communication of the project, approach and findings was considered an important mechanism to stimulate broader debate and to attract input from local, national and international stakeholders throughout the project. The project team took several opportunities to disseminate this information at conferences and seminars.

The project team undertook a sequential process of consultation, drafting, revision and assessment to formulate a set of indicators for pilot testing. Analysis and revision of indicators subsequent to pilot testing and further consultation contributed to the formulation of a final recommended set of measures, a data dictionary and reporting framework.

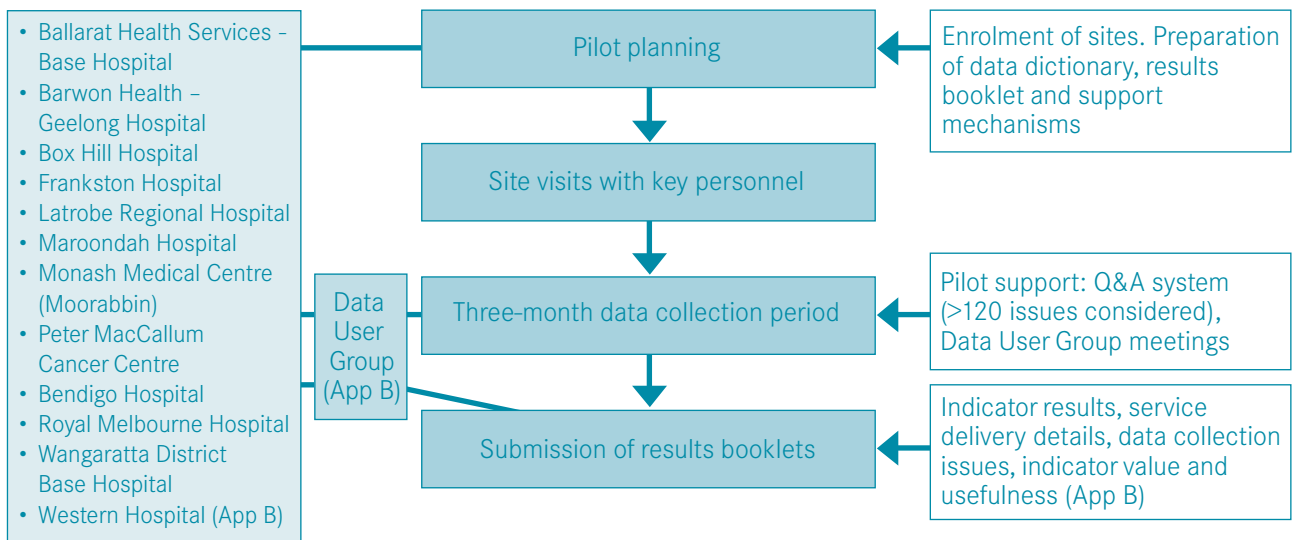
Figure 1 illustrates this evolving process and defines key project activities, milestones and mechanisms. This chart refers to the relevant sections of this document which further explain definitions of terms or processes.

Figure 1

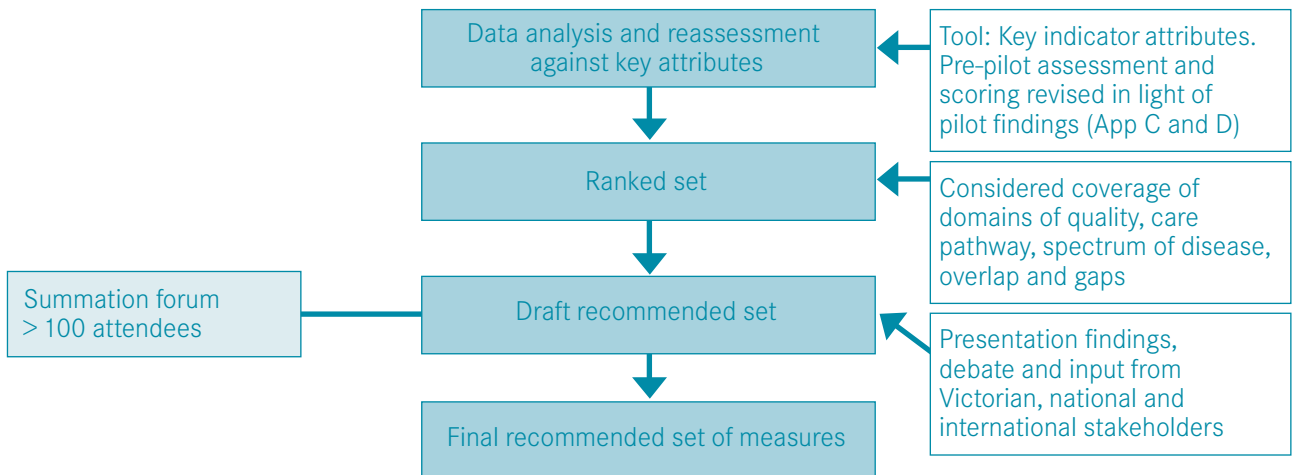




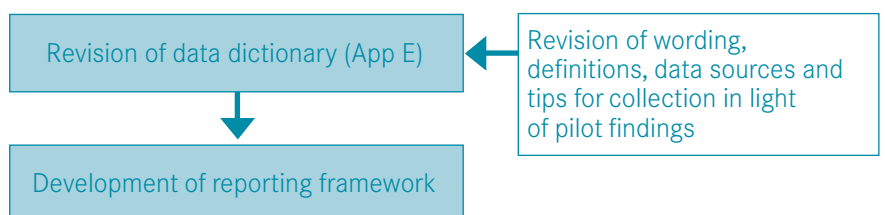
**Phase 3 Nov 2002 - May 2003: Pilot testing**



**Phase 4 May 2003 - Aug 2003: Finalisation of recommended set**



**Phase 5 Sep 2003 - Dec 2003: Data dictionary and reporting framework development**



**Submission final report – project completion December 2003**

## An assessment of current practice

### Literature review and survey of Victorian practice

A review of the national and international literature relating to models for developing and using performance indicators and to specific measures in breast disease was undertaken at the commencement of the project and updated at regular intervals. The review also aimed to identify evidence of, and guidelines for, best practice for women with breast disease.

At an early stage in the project, Victorian public hospitals were surveyed to ascertain their current use of performance indicators specific to breast disease. This did not include standard hospital collections, such as the Victorian Admitted Episodes Database and the Victorian Emergency Minimum Dataset or other formal collections, such as the Royal Australasian College of Surgeons' audit or the Australian Council on Healthcare Standards indicators. The questionnaire was aimed at data items that are collected as a guide to monitor and evaluate the quality of service or care beyond these 'standard' collections. For services that indicated they collect data or monitor key performance indicators, further information was sought about the data items collected and areas monitored.

The review of the literature revealed there was no national or international precedent for developing a discrete set of clinical and process indicators which relate specifically to the management and treatment of breast disease and cover the continuum of care (from the symptomatic presentation of breast disease to treatment and palliation).

## Performance indicators and their potential uses

### A history of performance indicator development and use

Given the United States of America's Joint Commission on Accreditation of HealthCare Organisations' pre-eminent role in the field, its definition of a clinical indicator is frequently cited:

A performance indicator is a quantitative measure that can be used as a guide to monitor and evaluate the quality of important patient care and support service activities (Joint Commission on Accreditation of Healthcare Organisations, 1989).

In a similar vein, a clinical indicator is also defined by the Australian Council on Healthcare Standards as 'an objective measure of the clinical management and outcome of care' (Collopy and Balding, 1993).

Much work in the field has been undertaken within the United States. The Joint Commission on Accreditation of HealthCare Organisations began the indicator development initiative of the Agenda for Change in the late 1980s. The resultant *National library of healthcare indicators*, first published in 1997, contains an extensive number of performance indicators which can be used 'to assess the performance of health plans, integrated delivery networks, provider sponsored organisations and other emerging delivery system forms' (Joint Commission on Accreditation of Healthcare Organisations, 1997).

These indicators are designed to generate performance information to assist consumer and purchaser decision making and to facilitate benchmarking of performance against other networks or health plans. Using indicators to compare the performance of health care organisations and individual health care providers has become more commonplace in recent years in the competitive American health care market (Romano et al, 1995 and Rosenthal et al, 1998).

In contrast, the Maryland's Hospital Association Quality Indicator Project, which is the largest single indicator monitoring initiative in existence anywhere in acute health care, seeks to educate participants in the use of quality indicator data for quality improvement. With the motto, 'It's not the data, it's what you do with it', the program operates at the local level for facility level quality improvement. Comparisons are not made across institutions (Maryland's Hospital Quality Indicator Project, 2001 and Boyce et al, 1997).

In the United Kingdom, the National Health Service has a three-pronged strategy to drive performance improvement. The strategy, which consists of setting national standards, developing dependable local delivery systems and monitoring performance, involves indicators which are 'not direct measures of quality but are to be used to draw attention to issues that may need further investigation or action' (National Health Service, 2001). The National

Health Service's Performance Assessment Framework is divided into six areas: improving people's health, fair access, delivering effective health care, efficiency, user/carer experience and the health outcomes of National Health Service care. The indicator sets were developed in partnership with the clinical professions and National Health Service managers.

In Australia, 'numerous indicator initiatives have occurred within facilities, benchmarking projects, best practice programs and the Health Departments of States and Territories' (Maryland's Hospital Quality Indicator Project, 2001). The National Hospitals Outcomes Program commissioned a comprehensive review in 1997 to help inform the development of a set of nationally consistent quality of care and health outcome indicators for acute health care services in Australia (Maryland's Hospital Quality Indicator Project, 2001). The National Health Performance Committee, established by Australian health ministers in August 1999, is responsible for developing and maintaining a national performance measurement framework for the health system, supporting benchmarking for health system improvement, and providing information on national health system performance (McLoughlin et al, 2001).

A philosophy and approach to performance measurement similar to that of the Maryland's Hospital Association Program underpins the Australian Council on Healthcare Standards' Care Evaluation Program, which from 1989 to 2000 oversaw the development of 18 sets of clinical indicators in conjunction with the Australian medical colleges (Collopy et al, 2000). This program, initiated to increase medical input into quality assurance activities in Australia (Collopy, 1994), is characterised by performance measures that are provider-developed and act as 'flags' of possible problems and highlight areas which might require further review (Collopy and Balding, 1993 and Collopy, 1998). Another feature of the Australian Council on Healthcare Standards' program is the process of ongoing review and refinement of the clinical indicators until a 'core group of the most valuable and responsive measures' is achieved (Collopy, 2000).

### Categories of performance indicators

Avedis Donabedian's seminal work in classifying the core components of health care quality as being those relating to structure, process and outcome has had much influence on formulating performance indicators. Donabedian used the concept of 'structure' to describe the physical and organisational characteristics of the system (for example, the staff, the equipment of the health care facility), the concept of 'process' as what is done in caring for the patient (what the provider does, including the sequence of care delivery, and the interactions that occur between the patient and the health care provider), and 'outcome' as what is achieved as an improvement in health, attitudes, behaviour or knowledge (Donabedian, 1998).

Accordingly, there is broad consensus that performance indicators should either measure an outcome of care (for example, morbidity from post-operative wound infection) or a process (such as, compliance with criteria for managing a particular condition) (Procter et al, 1996, McGlynn, 1998, Malin et al, 2000, Idvall et al, 1997 and Collopy et al, 1995). The components of process and outcome, however, should not be considered as discrete, independent entities, but as integrally linked. This is critical to performance indicator development because an indicator should be regarded as a measurement of some point in an underlying process-outcome continuum and be based on evidence confirming the underlying causal relationship between a particular process and health outcome.

Although measuring outcomes is the most intuitively appealing approach to quality assessment, much of the literature recognises that outcomes are only an indirect measurement of the quality of care provided (McGlynn, 1998, Rubin et al, 2001, Eddy, 1998, Hofer et al, 1997 and Malin et al, 2000). Often 'outcomes may not be immediately known and in other cases the outcome reported may not be frequent enough to provide large enough numbers to draw firm conclusions' (Gibberd et al, 2000). In contrast, 'processes tend to be frequent, immediate, controllable and rarely confounded by other factors' (Eddy, 1998).

In a further categorisation of performance indicators, the Joint Commission on Accreditation of HealthCare Organisations distinguishes between sentinel event indicators and those that are rate-based:

Sentinel event indicators measure a serious, undesirable and often avoidable process or outcome. They may also express a performance measure that identifies an individual event that should always trigger further analysis and investigation and they usually occur infrequently and are undesirable in nature (Joint Commission on Accreditation of Healthcare Organisations, 1998).

An example of a sentinel event indicator would be maternal death. Rate-based indicators ‘measure patient care events for which a certain rate of occurrence is acceptable or aggregate data in which the value of each measurement is expressed as a proportion or a ratio’ (Joint Commission on Accreditation of Healthcare Organisations, 1998). Rate-based indicators are the most commonly used in quality improvement activities (Idvall et al, 1997). An example of a rate-based indicator would be the number of women with breast-conserving surgery undergoing radiotherapy as a proportion of women with breast-conserving surgery who would be ‘eligible’ for radiotherapy.

### The use of performance indicators

Given the current worldwide focus on developing quality indicators for health care, amounting to what has been called a ‘national obsession’ in the United States (Hofer et al, 1997), the question of their benefits arises. There is little doubt increasing knowledge, new insights and pressures for greater fiscal and quality accountability have brought about a redirection in assessing the quality of medical care. The focus has shifted from ‘individual case review to review of patterns of care’ (Mayer-Oakes and Barnes, 1997). As identified in Australia prior to the development of the Australian Council on Healthcare Standards’ Care Evaluation Program, many health care facility accreditation processes reflected ‘the structures and processes of the facility and not the actual quality of patient care; [accreditation] reviews the potential of a facility to provide good care ... [not] ... whether this potential is actually realised’ (Collopy and Balding, 1993).

Indicator systems are used for either internal and external control and accountability or formative quality improvement (Freeman, 2002) and very few indicators are appropriate for all these purposes (Ibrahim, 2001). Many attest to the benefits accruing from using well formulated performance indicators in a health care setting while also acknowledging they are an adjunct to, rather than a replacement for, quality assurance programs (Collopy and Balding, 1993). Collopy acknowledges that while professional attitudes might be sufficient to change practice, ‘the knowledge that a third party will review a facility’s results ... is a clear inducement to address these results before the review’ (Collopy, 2002). Great emphasis is placed, however, on health care providers being assured of confidentiality ‘so that the exercise takes place in an educational environment’ rather than a punitive one (Collopy, 1998).

### Performance indicators in cancer and breast disease

While many lessons can be taken from indicator development projects applicable to the broad spectrum of health care, other medical conditions or clinical specialities, the literature confirmed that this project’s focus on breast cancer and breast disease required a unique approach. This was demonstrated in a United States study which aimed to develop evidence-based process indicators to compare the quality of care provided by different health plans or managed care organisations. Six cancers (including breast cancer), the human immunodeficiency virus (HIV) and 39 general adult medical conditions were examined. It was concluded that to ensure access to quality cancer care, quality must be monitored across the entire continuum of care, including early detection, diagnosis, treatment, follow-up and palliation (Malin et al, 2000).

The one set of ‘breast cancer’ performance indicators identified in the literature review was developed by the National Health Service as part of its *Manual of cancer services standards*, formulated in 2001. The indicators, which were designed to measure outcomes achieved through implementing corresponding standards, related to the diagnostic phase, the initial stage of treatment and overall disease outcomes (National Health Service Executive, 2001). In addition, there were other broader sets of indicators formulated by the Joint Commission on Accreditation of HealthCare Organisations, the Australian Council on Healthcare Standards and the British Association of Surgical Oncology, which contained a small number of performance indicators for breast disease.

Another set of indicators, which relate to cancer more generally, was developed by the New South Wales Health Department in conjunction with senior clinicians and contained both process and outcome indicators (New South Wales Health, 2003). The indicators examine the distribution of patients by cancer type, treatment intent, treatment type and performance status score, as well as the status of disease by time since diagnosis and at the end of definitive treatment. The proportion of patients enrolled in clinical trials is also measured.

The survey of Victorian hospitals at the commencement of this project revealed there was very little in the way of data collected to measure performance within hospital breast services. Given that data collection for standard hospital datasets, the Royal Australasian College of Surgeons' audit and the Australian Council on Healthcare Standards' indicators were excluded for the purposes of the survey, there was only a small number of public hospitals collecting performance data and using internally produced indicators beyond these established programs. The collection of data about breast disease at one site had been undertaken over approximately a ten-year period, resulting in a most comprehensive monitoring and evaluation source. The primary reasons for the institution's data collection and use of the indicators were to monitor service performance, to identify areas for improvement, and to assist clinical audit. It was acknowledged the survey process might not have been able to identify all data collections within institutions because some data were collected by individuals who might not have been approached directly through the survey process. It was anticipated that the pilot testing phase of the project would reveal further information on current data use.

The project considered the relevance of all existing indicators and indicator sets. In particular, an analysis of the National Health Service's 'breast disease' performance indicators and the New South Wales cancer indicators revealed some of the issues covered were suitable for consideration by the project's working parties. Others were either population indicators reflecting casemix or outcome measures affected by a multitude of factors and not of particular relevance to the project.

### **Evidence of best practice in breast service delivery to guide indicator development**

With the leadership of the National Health and Medical Research Council National Breast Cancer Centre, clinical practice guidelines in managing early and advanced breast cancer and psychosocial aspects of care have been produced in Australia. The American Society of Clinical Oncology has developed recommended breast cancer surveillance guidelines, while the Canadian Medical Association's Steering Committee on Clinical Practice Guidelines for the Care and Treatment of Breast Cancer has formulated guidelines on aspects of breast cancer treatment, including follow-up after treatment (Canadian Medical Association's Steering Committee on Clinical Practice Guidelines for the Care and Treatment of breast cancer, 2001).

While not labelling its product as clinical practice guidelines, the National Health Service in the United Kingdom has formulated a 'guidance document' specific to breast cancer 'to help purchasers to focus on those aspects of breast cancer services which are likely to have a significant impact on health outcomes'. Some of the areas covered by *Improving outcomes in breast cancer* include patient-centred care, rapid and accurate diagnostic services, patient follow-up and palliative care (National Health Service Cancer Guidance Sub-Group of the Clinical Outcomes Group, 1996).

A study conducted by Craft et al. in Australia found that using an audit of practice indicators based on the National Health and Medical Research Council's Early Breast Cancer Clinical Guidelines was a way of enhancing the uptake of breast cancer management guidelines. This is a positive interrelationship given 'congruence of treatment practice with published guidelines has been directly associated with improved patient survival; improved treatment practice has the potential to improve survival by up to 10%' (Craft et al, 2000).

## Models for performance indicator development

The development of performance indicators can take a top-down or a bottom-up approach.

A bottom-up model means that indicators are set, monitored and evaluated by service providers at the local level, while a top-down model means that the indicators are developed by key people at the top of an organisation or outside the organisation (Idvall et al, 1997).

Many indicator projects have used the bottom-up model or, at a minimum, had significant involvement from key stakeholders at the local level (National Health Service, 2001 and Collopy et al, 1995). This approach is based on the premise an indicator must be acceptable to those whose work is being evaluated (Jewell, 1992 and Collopy et al, 2000). Also, provider involvement in the formulation stage ensures 'the face and content validity of the indicators (i.e. that they appear to be valid measures of quality and measure what they were designed to measure)' (Collopy et al, 2000).

There is broad agreement that the first step in indicator development is to identify areas of practice that are critical to the quality of patient care. 'Experience has demonstrated that unless important issues are carefully defined, standards development and monitoring and evaluation efforts are often random and haphazard' (Katz and Schroeder, 1994). It is also broadly acknowledged in the literature 'not everything that counts can be counted' by indicators (Ibrahim, 2001 and Spiegelman, 2002). Many agree a delicate balance needs to be struck between coverage and practicality. As Freeman points out, 'too few indicators and important aspects will be missed; too many and the instrument will be impractical to use and costly to maintain' (Freeman, 2002).

Some groups have recommended using domains of quality as guiding principles to determine areas for indicator development. These include items such as appropriateness, effectiveness, timeliness, continuity and access. The Joint Commission on Accreditation of HealthCare Organisations has ten domains of performance by which it ranks all indicators (Joint Commission on Accreditation of Healthcare Organisations, 1997) and the Australian National Hospital Outcomes Program review identified eight dimensions of quality to guide its selection of indicators (Maryland's Hospital Quality Indicator Project, 2001). These include access, efficiency, safety, effectiveness, acceptability, continuity, technical proficiency and appropriateness.

Methods for assessing and refining possible indicators vary in the literature. Some are simple systems identifying characteristics, such as high volume (aspects of care which occur frequently or affect a large number of patients), high risk (aspects of care that involve risks to the patient), high problem areas (aspects of care which tend to produce problems for patients and staff) or high cost (Idvall et al, 1997). Others use more sophisticated methods.

While the indicator should represent an important aspect of care, it must also be measurable and provide meaningful information to the service. Unless certain attributes of a good quality indicator are met, the development exercise would be fruitless and the sustainability of the indicator would be reduced (Collopy, 1998, McGlynn, 1998, Hofer et al, 1997, Mayer-Oakes and Barnes, 1997 and McLaws et al, 1997). 'A measure could be meaningful (that is, the content is of great clinical or consumer importance) and not scientifically sound (that is, the results do not adequately reflect the concept of interest)' (McGlynn, 1998). The attributes necessary for good quality indicators include:

- availability
- definitional clarity
- validity
- reliability
- reproducibility
- responsiveness
- interpretability
- significance
- utility (Maryland's Hospital Quality Indicator Project, 2001 and Collopy, 1998).

When developing performance indicators, it is important to identify the sources from which the data relevant to the performance indicator will be obtained and to determine the data's availability (McGlynn and Asch, 1998). Pilot testing the performance indicators will provide information relevant to many components of the indicators' development—'skipping this step is perilous' (Rubin et al, 2001).

Another key factor in assessing and ranking proposed indicators is the availability of evidence to support the link between process and outcome (Donabedian, 1998, Hofer et al, 1997, Malin et al, 1999, Meehan et al, 1995 and Mayer-Oakes and Barnes, 1997). With much research into the 'efficacy' rather than the 'effectiveness' of care, however, the challenge is 'to translate what has been learned from the best studies into indicators of effective rather than efficacious care' (Mayer-Oakes and Barnes, 1997). With clinical practice guidelines combining the latest in scientific evidence, many see 'good guidelines as being the precursor of good clinical indicators' (Maryland's Hospital Quality Indicator Project, 2001, Marder, 1990).

Setting the threshold of a performance indicator is not an easy task and might initiate questions of a professional, ethical, economic and practical nature (Idvall et al, 1997). The threshold of an indicator is defined as 'the point at which intensive evaluation, auditing or peer review is initiated' (Idvall et al, 1997). The figure '95 per cent' is an example of a threshold in the following indicator: 95 per cent of patients' calls will be answered within three minutes. If data are not available to guide the initial setting of a threshold, the threshold should be provisionally set and then reviewed and adjusted (Collopy, 1994 and Idvall et al, 1997). A threshold should be set at a realistic and attainable level. Rather than setting thresholds, the Australian Council on Healthcare Standards examines the twentieth and eightieth centiles for an indicator which 'allows providers to determine not only whether their own rates are above or below average but whether there are areas for improvement by moving their rates to the best centile' (The Australian Council on Healthcare Standards, 2001).

For performance indicators concerning health outcomes, ideally results should be adjusted for risk factors or other confounding variables where appropriate (Gibberd et al, 2000). The purpose of casemix or severity-of-illness adjustment is to allow for a 'fair' comparison of health outcomes and to ensure any observed differences can be attributed to health care organisations' interventions and not to differences between the patient populations (McGlynn and Asch, 1998). For example, 'patients who die or recover more slowly may not have received poorer quality care but may have been at higher risk for these outcomes before treatment' (McGlynn and Asch, 1998). Risk adjustment requires additional collection of data, some of which might need to be sought from sources other than those used to determine performance.

While commonly undertaken, some in the area of performance indicator development still consider risk adjustment to be problematic. As Donabedian suggests:

Because a multitude of factors influence outcome, it is not possible to know for certain, even after extensive adjustments for differences in case mix are made, the extent to which an observed outcome is attributable to an antecedent process of care. Confirmation is needed by a direct assessment of the process itself (Donabedian, 1998).

Boyce et al. also found 'there is difficulty interpreting most quality and outcome indicator data because current methodologies incompletely account for differences in patient populations and non-health care confounders which affect the probability of achieving good results' (Maryland's Hospital Quality Indicator Project, 2001). Yet others have found value in a 'variation on the theme' by using risk stratification or threshold stratification. The former might occur when performance on indicators is reported separately for different population groups (McGlynn, 1998), whereas an example of the latter might be where indicator thresholds are stratified to reflect the different sizes of health care facilities (Booth and Collopy, 1997).

Developing performance indicators is not a 'one-off', short term process. To ensure indicators are truly valuable and sustainable, indicator development must be a continuous, iterative process (Hofer et al, 1997, Idvall et al, 1997 and McGlynn, 1998). Performance indicators need to be regularly reviewed in light of new evidence, their usefulness and their precision, and emerging issues of need (Collopy, 2000).

### Summary

The literature review and the survey of current Victorian practice revealed there is some experience to draw on in developing performance indicators in breast disease and cancer. More importantly, the literature review provided a strong basis on which to develop a robust method for developing and refining indicators. Evidence supporting a focus across the continuum of care and an emphasis on developing indicators for quality improvement was prominent.

## The development of performance indicators

The project followed a sequential process of consultation, development and refinement of indicators. The key steps in this process include:

- undertaking a detailed collaborative process to develop and refine a series of draft indicators
- investigating these measures and their value in the field through a three-month pilot exercise in 12 public hospitals
- revising and refining the indicators in light of pilot findings and input from stakeholders
- developing a recommended set of indicators, a data dictionary and reporting framework.

### Development and refinement of draft indicators

The project team convened a consumer reference group and a series of project- and issues-specific working parties. Appendix A outlines each working party and committee, its membership and role.

To enable effective and efficient management of the indicator development work, the care pathway was segmented into three broad care components: diagnosis, treatment and follow-up.

Diagnosis: From presentation to definitive diagnosis

Treatment: From treatment planning to management of disease, including but not limited to, surgery and adjuvant therapy

Follow-up: All follow-up activities, surveillance and support until the time of recovery, remission or death

In the initial project stages, each broad care component was allocated a multidisciplinary working party comprising expert stakeholders. A consumer reference group, which met throughout the project, was also involved in identifying and refining the indicators. Three rounds of meetings were held over a period of five months and there was consultation by correspondence between meetings to progress the indicator drafting and refinement process. As there was no defined demarcation between each segment of the care pathway and many issues were likely to be common to the core components, discussion of common issues across the relevant working parties promoted consistency in indicator development.

The first round of working parties considered the domains of quality (see Appendix C) to identify topics for potential indicator development in each care component (diagnosis, treatment and follow-up). This identified more than 90 issues, which were drafted into 77 indicators once duplicate measures were removed.

The second round of working parties considered the draft set of indicators in each area of the care pathway. This round revised indicators measuring similar aspects of care and deleted indicators considered to be unmeasurable. At the conclusion of this round of meetings, a merged set of 55 draft indicators remained.

The working parties provided input to the compilation of information about key indicator attributes to guide a subsequent assessment process. The project team agreed on the key attributes against which the indicators were assessed and the weighting of each attribute (see Appendix C).

The project team considered this information and agreed on a score for each of six key attributes for each indicator. It then calculated a percentage score for each indicator, which allowed the set to be ranked from highest to lowest scoring. The team then set an arbitrary cut-off point, which separated indicators recommended for pilot testing from those considered not suitable for further development.

The third and final round of the broad care component working parties considered the combined ranked list of indicators. They debated scores given to each measure, the resultant ranked set and the proposed cut-off point for pilot testing. These meetings focused on indicators allocated either for inclusion or exclusion from a set for pilot testing. Consensus decisions were sought and reached. The result of these meetings was an agreed set of 16 measures for pilot testing, 25 measures which were not suitable for indicator development, and nine measures which required further examination before a final decision could be made.

For those 25 measures not considered suitable for pilot testing, the project team identified areas where further work could be undertaken, but not in the context of indicator development. These issues include accuracy of testing, content and protocols for key consultations, continuity of supportive care, information provision, lymphoedema and clinical trials. These issues present opportunities for improvement which might be addressed through other quality improvement mechanisms, such as standard development. The project team referred these issues to BreastCare Victoria.

The nine measures requiring further examination were considered to be issues that, although of considerable importance, were likely to have limited value as a performance indicator because of difficulties in definition and measurement. The project convened a further series of issue-specific working parties to consider these potential measures. This resulted in the modification of some indicators and the inclusion of additional indicators, while some issues were considered unsuitable for further development.

At the completion of this process, 20 indicators were recommended for pilot testing to allow further refinement. The project team referred all issues not considered suitable for indicator development at this time to BreastCare Victoria for consideration.

## Pilot testing

A key step in revising and refining a robust set of performance indicators was a pilot testing exercise. The pilot assessed the logistics and burden of data collection and the value of the measures as a quality improvement tool at the service level. Twelve public hospitals participated in a three-month pilot testing phase of the following 20 indicators:

1. percentage of new breast clinic patients seen within ten working days of request for appointment date
2. percentage of patients having contact with a breast care nurse between being informed of a diagnosis of breast cancer and having definitive surgery
3. percentage of histopathology reports post definitive surgery for invasive breast cancer, which contain complete information
4. percentage of specimens from definitive surgery for breast cancer, with clear histological margins
5. percentage of invasive breast cancer patients with evidence of a multidisciplinary team management discussion having taken place (as defined by an agreed local protocol)
6. percentage of new breast clinic patients informed of a definitive diagnosis within ten working days of first appointment
7. percentage of localised impalpable breast lesions for which specimen radiography has been undertaken
8. percentage of patients undergoing a diagnostic open breast biopsy who are found to have a benign result
9. percentage of patients having definitive surgery for invasive breast cancer with defined indications for radiotherapy who are referred to a radiation oncologist
10. percentage of invasive breast cancer patients diagnosed with febrile neutropaenia following administration of chemotherapy, requiring admission to hospital for an overnight stay
11. percentage of patients receiving a definitive diagnosis of breast cancer without an open biopsy
12. percentage of invasive breast cancer patients who had staging undertaken and documented in the medical record before being referred for adjuvant therapy
13. percentage of patients whose general practitioner was sent management information within ten working days of discharge following definitive surgery for breast cancer
14. percentage of patients requiring an unplanned return to the operating room during an admission for breast cancer surgery for a problem related to that surgery
15. percentage of invasive breast cancer patients with intermediate or high risk of recurrence who are referred to a medical oncologist

16. percentage of patients diagnosed with breast cancer whose general practitioner has been notified of the diagnosis within two working days of the patient being informed
17. percentage of patients who have one or more medical consultations between being informed of a definitive diagnosis of breast cancer and commencement of definitive treatment
18. percentage of patients who have an unplanned readmission to hospital within 28 days of discharge following breast cancer surgery, with a complication related to that surgery
19. percentage of invasive breast cancer patients with a positive hormone receptor status who receive hormonal treatment
20. percentage of invasive breast cancer patients diagnosed with bone metastases receiving bisphosphonate treatment.

The 12 public hospitals that participated in the pilot testing exercise are:

- Ballarat Health Services – Base Hospital
- Barwon Health – The Geelong Hospital
- Box Hill Hospital
- Frankston Hospital
- Latrobe Regional Hospital
- Maroondah Hospital
- Monash Medical Centre
- Peter MacCallum Cancer Centre
- The Bendigo Hospital (Bendigo Health Care Group)
- The Royal Melbourne Hospital
- Wangaratta District Base Hospital
- Western Hospital.

Each site pilot tested a set of ten indicators. Five indicators (one to five) were piloted across all 12 sites and further sets of five indicators drawn from indicators six to 20 were each piloted at four sites. This action was designed to reduce the burden of participation in the pilot exercise and to allow comparisons across all participating sites for a number of measures. This was particularly important in understanding the impact of service delivery patterns and hospital characteristics on the ability to collect and report on data in this way. In selecting participating hospitals and allocating indicator sets to pilot sites, the project team considered the need for a mix of rural and urban sites, smaller and larger facilities and a range of services and service delivery patterns. It also made an effort to ensure an even range of burden of collection within each set of ten measures.

## Support during pilot testing

The project team put in place a series of mechanisms to support pilot sites during the pilot testing of the draft performance indicators as outlined below. In addition, BreastCare Victoria provided a small grant of \$5,000 to each of the pilot sites to support their participation in this phase.

### Data dictionary

The project team developed a data dictionary as the key resource and reference for use during the pilot to promote consistent data collection, collation and reporting. The dictionary included some general information about each of the indicators, such as the area of interest, the specific topic, the domain of quality and the rationale behind the indicator. It outlined detailed definitions and specifications for each indicator, as well as data inclusions and exclusions, useful data elements, such as ICD-10-AM codes, and a list of possible data sources.

### Results booklet

The project team developed a results booklet, available in hard copy and electronic formats, for specifically recording indicator results and contextual information. In addition to numerical results, the results booklet also requested information on the resources, systems and effort required by hospitals to collect data for the indicators and information on the value and utility of the indicators at the service level. The booklet also had space for recording details of the nature of breast service delivery and general feedback on the indicators and support mechanisms.

### Visits

Visits to participating pilot sites prior to data collection provided an opportunity for contact with key hospital personnel to provide information about the project, the conduct of the pilot and the support mechanisms available.

### Email group

The project team established a question-and-answer email group to respond to queries about indicator definitions and terms, data sources, data collection mechanisms and other concerns. Pilot sites were able to submit queries about specific indicators to the project team. The project team then provided a response to all hospitals piloting that particular indicator. The project team received and responded to more than 120 issues during the pilot phase.

### Data user group

A data user group provided opportunities for communication between pilot hospitals and the project team with a view to:

- providing information about performance indicators and this project
- discussing indicator definitions and terms
- identifying useful data elements and sources
- sharing ideas about pilot processes and methods of data collection
- exploring commonly asked questions, issues and problems.

The group met four times prior to, during and following the pilot period and proved to be an invaluable source of feedback to enhance the project team's understanding of the indicators.

## Analysis of pilot data

Initial data analysis involved checking the completeness of the results booklets and following up with pilot sites where data were missing or unclear. The project team took a simple approach to data analysis, recognising the limitations of data collected over a short time period with often very small sample sizes reported. For each indicator, the team tabulated results across each pilot site and calculated the mean, median and range. It examined the comments the pilot sites provided about the data collection elements and value and usefulness of each indicator, in conjunction with the hospital details and the general feedback, to provide the context for assessing indicators against the key indicator attributes (see Appendix C).

## Service delivery patterns

Information about the delivery of breast and related services provided a context for assessing indicators through an understanding of local service delivery patterns and issues. Table 1 summarises the characteristics of the 12 pilot sites and demonstrates a spread in the size of the facilities, services provided and specific arrangements for providing breast services. For three sites, diagnostic breast services were provided outside the hospital within private general surgical or specialist breast clinics. While all pilot sites have access to on-site pathology, radiology and medical oncology services, only six of the 12 pilot sites have a medical radiation service, with a further two having full access to a local site within their network.

**Table 1. Hospital and breast service characteristics for participating pilot sites**

Acute beds	
0-100	0
101-200	4
201-300	3
301-400	4
401+	1
Mean	269
Median	244
Range	110-560
Acute separations	
0-20,000	2
20,001-40,000	6
40,001-60,000	2
60,001-80,000	2
Mean	33,111
Median	23,418
Range	11,865-70,943
Breast service clinical arrangements	Number of pilot sites
<i>Dedicated breast clinics</i>	
Specialist breast clinic	5
General surgical clinic	1
Private specialist breast clinic	1
<i>Non-dedicated clinics</i>	
General surgical	3
Private general surgical	2

Other related services	Number of pilot sites
Lymphoedema	3
Family cancer clinic	2
Physiotherapy	1
Psycho-oncology clinic	1
Other related services, not specified	6
Other hospital services	
Emergency department	11
On-site pathology	12
On-site radiology	12
Medical oncology	12
Medical radiation service	8 (6 on-site)

Table 2 provides information about personnel involved in providing breast services at participating pilot sites. Just as there is a significant range in the size of hospitals and breast services across the pilot sites, there is also a significant range in the number of clinical and non-clinical staff providing these services.

**Table 2. Personnel associated with breast service delivery in participating pilot sites**

Surgical consultants	Number	
Mean	5.7	
Median	5	
Range	3-10	
Dedicated breast care nurses	Number	EFT
Mean	1.6	1.0
Median	1	0.7
Range	1-4	0.1-2.9
Medical oncologists	Number	
Mean	3	
Median	2	
Range	1-6	
Radiation oncologists (of eight sites)	Number	
Mean	2	
Median	2	
Range	1-5	
Unit support staff (data, administration)	Number	
Mean	1.5	
Median	0.5	
Range	0-5	

The type of service the hospitals provide affected data collection, particularly for those indicators focusing on presentation and diagnosis of patients. Sites without clinic services generally treat patients who are aware of their diagnosis before referral. Some were unable to participate in the indicators addressing these areas of the care pathway, while others were able to make arrangements with the private providers to make the data available. For some indicators, this limitation resulted in small patient numbers, reducing the usefulness of the indicators.

## Pilot data collection – mechanisms and issues of burden

Data collection for the indicators involved a range of staff and hospital departments. At all pilot sites, it was a collaborative effort, generally with different combinations of data managers (breast or oncology units), breast care nurses, health information managers and information unit personnel. At some sites, staff from breast units, health information services, private consulting rooms, pharmacy, radiology and nuclear medicine departments, quality managers, pathologists and clinicians also participated. Each pilot site nominated one or two people who oversaw the data collection for the indicators, coordinated input from colleagues in completing the results booklet and submitted pilot results. These individuals were also members of the data user group.

A mix of electronic and manual hospital information systems or departmental databases was used to identify patients for indicator denominators. The next step was a review of medical records, unit-held records, pathology and radiology reports, registers, and at one site, private practice medical records. Many sites experienced a variety of documentation issues. These include difficulty in locating medical records, insufficient or absent documentation (such as recording of multidisciplinary meetings outcomes), non-standard location of documents, and inconsistent reporting styles, terminology or protocols. Sites made simple changes to work practices, such as introducing stickers, stamps, spreadsheets and data collection forms, to enhance data collection. More significant changes initiated during the pilot phase have remained in place in some hospitals, such as recording the recommendations arising from multidisciplinary team management discussions and including these in the medical record.

Care provided in the outpatient setting is not routinely coded on hospital information systems. A denominator could not be identified for patients with advanced breast cancer whose care predominantly occurs in this setting. A variety of manual mechanisms were identified to try and ascertain this denominator, however, the burden was substantial.

Throughout the pilot study, the pilot sites raised data collection issues. They questioned definitions; for example, some sites requested that a definitive width of margin should be required rather than 'clear histological margins'. Some sites made minor changes to definitions to enable data collection; for example, one site altered 'working days' to 'calendar days' and another modified the definition to reflect a local protocol about 'febrile neutropenia'. The sites discussed numerators and denominators to clarify what was being measured (for example, patients, reports or specimens) and challenged inclusions and exclusions, such as re-excisions and male patients.

The time taken to collect data for the three-month pilot period varied enormously across indicators and sites. Most sites reported the majority of indicators took less than six hours of collection time for each indicator for the three-month period, with only two sites reporting collection for any one indicator took more than 16 hours. For some indicators, the reported length of collection time varied greatly between sites, with a range of less than one hour and up to 16 hours being reported for one indicator. A number of indicators have common denominators and data collection was streamlined by collecting the numerator information for those indicators concurrently. Retrospective record review and the availability of synoptic reports also contributed to lowering the burden of data collection.

At sites without a dedicated breast clinic, it was time-consuming to identify patients with breast problems. Inconsistent histopathology reporting formats also made data collection difficult. Difficulties also arose where there was no standard location of documentation in the medical record or where there was confusion with the intent of the indicator combined with the absence of a specific ICD-10-AM code. Other troublesome factors were the need to manually review medical records and problems with interpreting indications for radiotherapy. For some indicators, pilot sites reported the value of the indicator was not commensurate with the burden of collection, particularly where the frequency of an event was low or where data collection was particularly resource-intensive; for example, indicator 20 where the denominator (patients with advanced breast cancer and bone metastases) was not identifiable from hospital information systems.

As expected, pilot sites used multiple sources for several indicators. The sites were fairly consistent in the number of sources they used for each indicator. For some of the indicators for which burden was a significant factor, many pilot sites identified potential mechanisms for streamlined data collection systems in the event those particular measures are implemented for routine collection.

## Results by indicator

The pilot testing phase was designed to provide key information about the collectability of data and the draft indicators' value in the field. Prior to pilot testing, the project team undertook an assessment against a number of key indicator attributes, estimating a numerical value for each. With the information provided by the pilot testing exercise, the project team revised the scoring of the indicators to reflect improved understanding. This process allowed the piloted indicators to be ranked in order of 'value'.

Appendix D provides a summary of results for each of the 20 indicators pilot tested. The numerical results, pre- and post-pilot assessment scores against key indicator attributes, and comments from pilot sites are presented.

## From pilot testing to a recommended set of indicators

At the completion of the reassessment process, ten indicators scored 66 per cent or over and were further considered for coverage of domains of quality (see Appendix C), representation over the care pathway and spectrum of disease, and any overlap or gaps in the ten measures.

Of the ten top-ranking indicators, only one covered the domains of safety and effectiveness. It related to clear margins from definitive surgery. Other piloted indicators addressed issues of the complications of treatment, but these were very low frequency events which would lend themselves to review on a case by case basis. For the domain of effectiveness, it was considered that recommendations should reflect the need to:

- assess the effectiveness of services from the perspective of patients (through mechanisms for seeking consumer feedback)
- reconsider the potential for collecting and reporting on outcome measures in future, for example, disease recurrence and survival.

The top ten indicators demonstrated a spread across the care pathway, including measures relating to the phases of presentation, diagnosis, surgery and systemic therapy. The top ten did not cover radiation oncology.

The spectrum of disease was represented in the well scoring indicators. One indicator related to diagnosis and, therefore, included all patients presenting to a breast service, and one indicator was specific to advanced breast cancer. Most other indicators related to early breast cancer, with some also measuring care for patients with locally recurrent disease.

Three of the indicators which ranked in the 'top ten' were considered to be overlapping measures. These were the indicators relating to:

- medical oncology referrals
- hormone treatment for receptor positive tumours
- multidisciplinary team discussion.

It would be expected that with a well functioning multidisciplinary process, appropriate referrals for medical and radiation oncology would occur consistently. Hormone therapy would also very likely be administered to patients with receptor positive tumours in the event a referral to a medical oncologist occurs. It was decided the indicators relating to medical oncology referral and multidisciplinary care should remain in the recommended set, but the hormone treatment indicator should be omitted because of overlap. However, it was considered likely the medical oncology indicator would become redundant with time as multidisciplinary care processes become more robust.

Following analysis of the pilot data and consideration of the above issues, the project team's recommended set of indicators for final consideration by project stakeholders was:

1. percentage of new breast clinic patients seen within ten working days of request for appointment date
2. percentage of patients having contact with a breast care nurse between being informed of a diagnosis and having definitive surgery
3. percentage of new patients who have one or more medical consultations between being informed of a definitive diagnosis of breast cancer and commencement of definitive treatment
4. percentage of histopathology reports from definitive surgery for breast cancer, with clear histological margins
5. percentage of patients with invasive breast cancer who have complete histopathology reporting
6. percentage of invasive breast cancer patients with evidence of a multidisciplinary team management discussion having taken place (as defined by an agreed local protocol)
7. percentage of patients whose general practitioner was sent management information within ten working days of discharge following definitive surgery for breast cancer
8. percentage of invasive breast cancer patients with defined indications for:
  - medical oncology and referred to a medical oncologist
  - radiation oncology and referred to a radiation oncologist
9. percentage of invasive breast cancer patients diagnosed with bone metastases receiving bisphosphonate treatment
10. review of sentinel events:
  - invasive breast cancer patients diagnosed with febrile neutropaenia following administration of chemotherapy, requiring an overnight stay in hospital
  - breast cancer patients requiring an unplanned return to the operating room during an admission for breast cancer surgery for a problem related to that surgery
  - patients who have an unplanned readmission to hospital within 28 days of discharge following breast cancer surgery, with a complication related to that surgery.

## Summation forum

A summation forum held on 24 July 2003 provided the final opportunity for wide stakeholder input into the set of indicators to be recommended to the Department of Human Services. More than 100 people, including clinicians, breast care nurses, hospital administrators, quality managers and data staff, attended the forum. The broad interest generated by the project was also evidenced by the attendance of people involved in health services performance monitoring and breast disease initiatives interstate. These include the National Breast Cancer Centre, the Australian Institute of Health and Welfare, the Australian Council on Healthcare Standards and the Royal Australasian College of Surgeons' National Breast Cancer Audit Program.

The forum provided information about the project, its challenges and the approach taken, the findings from the pilot testing exercise and the draft recommended set of indicators. Context was provided in presentations about the wider field of indicator development and the current state of quality assurance activities and approaches in Victorian public hospitals. A keynote address by Professor Robert Mansel, President-Elect of the British Association of Surgical Oncology, provided an international perspective on performance monitoring of breast disease services.

Stakeholders from different backgrounds and perspectives commented on the recommended set of indicators and a wider discussion was held giving all attendees an opportunity to participate. The main issues raised were the need for:

- adequate resources for accurate, meaningful data collection and reporting
- other means to address topics raised that are not considered conducive to indicator development
- review of the indicator set on a regular basis to maintain its relevance and value
- emphasis on the complete pathology reporting and multidisciplinary care indicators as crucial measures of quality care
- work to overcome the barriers to performance measurement in advanced disease
- indicators relating to the timely receipt of medical and radiation oncology
- clarity in the implementation and use of these indicators
- a collaborative approach to overcome fragmentation of service delivery and to allow measurement to incorporate the continuum of care from the patient's perspective
- development of data collection mechanisms that would not overburden already limited human resources at the hospital level, for example, breast care nurses
- progress towards the collection and reporting of outcome data, particularly local recurrence rates
- a collaborative approach in future work to develop standards and a broader quality improvement framework
- reframing of the term 'sentinel events' because the measures listed in this set do not match with the common use of the term.

The final recommended set of indicators is presented in the next section of this report, 'Project recommendations'. The content of the recommended set was not altered subsequent to the summation forum, with the exception of a change from 'sentinel' to 'critical' events.

## Data dictionary

As discussed, the project team developed a data dictionary as the key resource and reference for use during the pilot phase. Definitions have been modified for the recommended set of indicators in response to issues arising from the pilot testing process and data analysis and interpretation for the final recommended set of measures. The dictionary has recently been updated to incorporate new ICD-10-AM codes for use from 1 July 2004. The complete data dictionary for the recommended set of indicators is included at Appendix E.

General information about each indicator, such as the area of interest, the specific topic, the domain of quality and the rationale behind the indicator, is included in the data dictionary. Detailed definitions and specifications are also included for each indicator, including definitions of terms used in the numerator and denominator, any data inclusions and exclusions, sections highlighting data elements that might be useful for the indicator, such as ICD-10-AM codes, a list of possible data sources and other comments where appropriate.

A minimum data set is intentionally not included. As most data items will already be collected and recorded in a manual form within each hospital, it was considered inappropriate to develop a comprehensive minimum data set that might prompt the development of new and unnecessarily duplicative electronic data collections. As hospitals also work differently and use different systems, it is not possible to develop or recommend specific tools or mechanisms for data collection or data sources for use by all hospitals. Each hospital knows best what data are collected, their location, how to access them, and under whose responsibility they lie.

If any specific data items required for calculating the performance indicators are not currently collected or if a service wishes to establish an electronic system which would require detailed data definitions, it is recommended that the data set developed comply with the National Health Data Dictionary and the National Cancer Control Institute Core Clinical Data Set available at <<http://www.ncci.org.au/pdf/dictionary3.pdf>>.

## **Reporting framework**

The project team developed a reporting framework which outlines, for each indicator in the recommended set, the frequency and nature of reporting. The suggested modes for routine reporting are internal reporting at a breast unit level, internal reporting at a hospital level and reporting to an external agency. The frequency and nature of reporting will depend on the type of indicator, the volume of numerator and denominator within each indicator, the internal reporting requirements of hospitals, and the requirements of external organisations to which hospitals report.

## **Dissemination of project findings**

Beyond communicating project findings to the Department of Human Services and stakeholders involved in the project, the project team sought further opportunities to disseminate information about the project for broader debate and input. These include presentations at a range of conferences, such as the National Breast Care Nurse Conference, Scientific Meeting of the Australasian Society for Breast Disease, and the Women's Hospitals Australasia and Children's Hospitals Australasia National Conference, as well as presentations to local stakeholders.



## Project recommendations

### The recommended set of indicators

The set of indicators recommended to be trialled for implementation in Victorian public hospital breast services is as follows:

#### Rate-based measures:

1. percentage of new breast clinic patients seen within 14 calendar days of request for appointment date
2. percentage of patients having contact with a breast care nurse between being informed of a diagnosis of breast cancer and having definitive surgery
3. percentage of new patients who have one or more medical consultations between being informed of a definitive diagnosis of breast cancer and commencement of definitive treatment
4. percentage of patients undergoing definitive surgery for breast cancer whose operative specimens have clear histological margins
5. percentage of patients with complete histopathology reports following definitive surgery for invasive breast cancer
6. percentage of invasive breast cancer patients with evidence of a multidisciplinary team management discussion having taken place (as defined by an agreed local protocol)
7. percentage of patients whose general practitioner was sent management information within 14 calendar days of discharge following definitive surgery for breast cancer
- 8.1 percentage of patients having definitive surgery for invasive breast cancer, with defined indications for radiotherapy, who are referred to a radiation oncologist
- 8.2 percentage of invasive breast cancer patients with intermediate or high risk of recurrence who are referred to a medical oncologist
9. percentage of invasive breast cancer patients diagnosed with bone metastases receiving bisphosphonate treatment

#### Critical events:

1. the number of invasive breast cancer patients diagnosed with febrile neutropaenia following administration of chemotherapy, requiring an overnight stay in hospital
2. the number of breast cancer patients requiring an unplanned return to the operating room during an admission for breast cancer surgery for a problem related to that surgery
3. the number of patients who have an unplanned readmission to hospital within 28 days of discharge following breast cancer surgery, with a complication related to that surgery.

Indicators one to nine are rate-based. They measure patient care events which occur at sufficient frequency to warrant expression as a percentage. The last three indicators relate to events which occur at a very low frequency and have been described as 'critical events'. These indicators are recommended for review by a breast service on a case by case basis.

### Issues not amenable to indicator development

While the project has focused on key aspects of care, it was clear from the outset that not all issues of importance would be conducive to indicator development. A series of recommendations about topics that would need to be addressed by other means has been made to BreastCare Victoria throughout this project. These issues include accuracy of testing, content and protocols for key consultations, information required to enhance communication and continuity of care, protocols for diagnosing and managing lymphoedema, access to supportive care for women with metastatic disease, and participation in clinical trials. These issues present opportunities for improvement which might be addressed through other quality improvement mechanisms, such as standard development.

## Implementation

Performance indicators are one part of an overall quality framework and attention to other elements, such as standards, protocols, pathways and consumer feedback, is important in the quality approach to breast cancer care. As with other indicators, a plan to review and revise the indicators is essential if the indicators are to remain meaningful. Finally, the results of this project suggest that mechanisms, such as a data dictionary, data user group and question-and-answer email systems, are valuable in supporting implementation. These mechanisms should be considered when planning for implementation.

## Appendix A

### The project team

Ms Alison Amos (Project Manager)  
Manager, Policy and Evaluation, BreastScreen Victoria Incorporated

Ms Jenny Brosi (until March 2002)  
Health Information Manager

Ms Genevieve Chappell  
Manager, Registry and Information Services

Mr Brian Collopy  
Director, CQM (consultants in clinical quality management)  
Indicator consultant to the project team

Dr Anne Kavanagh  
Senior Research Fellow, Australian Research Centre for Sex Health and Society and consultant epidemiologist  
to BreastScreen Victoria

Ms Sue Lockwood  
Consumer representative

Ms Genevieve Nolan (Project Officer)  
Policy Officer, BreastScreen Victoria Incorporated

Ms Suzanne Phillips  
Consumer representative

Ms Pauline Sanders (until May 2003)  
Deputy Director, BreastScreen Victoria Incorporated

Ms Margaret White (since July 2002)  
Health Information Manager



## Appendix B

### Project stakeholders, committees and working parties

The membership of each committee and working party and a brief description of their role in the project are included below. The project manager chaired all working parties and project team members provided executive support.

#### Project steering committee

**Role:** To provide advice and support to the project team and to monitor progress throughout the project. The steering committee met at key points throughout the duration of the project.

##### Membership:

Ms Elise Davies	Manager, Cancer Coordination Unit, Department of Human Services ( <i>Chair</i> )
Dr Prue Allan	Pathologist, Victorian Cytology Service
Professor Sanchia Aranda	Professor of Cancer Nursing Research, Peter MacCallum Cancer Centre
Dr Jenny Bartlett	Chief Clinical Advisor, Metropolitan Health and Aged Care Services, Department of Human Services
Assoc. Professor Michael Green	Deputy Director, Haematology and Medical Oncology, Royal Melbourne Hospital
Mr Stewart Hart	Surgeon and Director, Monash BreastScreen and Monash Breast Clinic
Ms Jane Jones	Manager, Barwon and South Western Region Breast Services Enhancement Program
Ms Sue Lockwood	Consumer representative
Ms Anne Pennington	Rural consumer representative
Associate Professor John Rasa	Chief General Manager, Acute Services, Eastern Health
Professor Alan Rodger	Director, William Buckland Radiotherapy Centre (to May 2003)
Ms Chris Scott	Manager, Inner and Eastern Breast Services Enhancement Program

#### Consumer reference group

**Role:** To provide a mechanism for consultation with women, to act as a sounding board for consumer representatives involved in the project team and other project committees and working parties and to propose areas for indicator development and contribute to the assessment and refinement of the indicators.

##### Membership:

It was with great sadness that the project team noted the passing of Fairlie Howard, Suzanne Knop and Dorothy McManus during the course of this project.

Marion Adler-Bishop	Sue Lockwood
Wendy Averill	Dorothy McManus
Nicola Bruce	Mary Macheras-Magias
Christine Delany	Anne Pennington
Sue Dobell	Suzanne Phillips
Fairlie Howard	Judy Rynhart
Susanne Knop	Evelyn Shipard

## Project working parties – indicator development

### *Diagnosis working party*

**Role:** To consider issues of quality across the domains of quality for care provided from presentation to diagnosis and to propose areas for indicator development. To contribute to the assessment and refinement of the indicators to a final set for pilot testing.

#### **Membership:**

Ms Sally Anderson	Cancer Council Victoria Cancer Information Support Services
Dr Jennifer Cawson	Radiologist, Director, St Vincent’s BreastScreen
Dr Huw Llewellyn	Pathologist, Victorian Cytology Service
Mr Bruce Mann	Surgeon, Royal Melbourne Hospital and North Western BreastScreen
Dr Prue Neerhut	Radiologist, Royal Melbourne Hospital
Dr Lisa Newton	General practitioner
Ms Suzanne Phillips	Consumer representative
Ms Judy Rynhart	Rural consumer representative
Ms Nicole Steers	Breast Care Nurse, Gippsland BreastScreen and Latrobe Regional Hospital
Mr Bruce Tulloh	Surgeon, Echuca

### *Treatment working party*

**Role:** To consider issues of quality across the domains of quality for care provided from treatment planning to management of disease, including but not limited to surgery and adjuvant therapy, and to propose areas for indicator development. To contribute to the assessment and refinement of the indicators to a final set for pilot testing.

#### **Membership:**

Ms Sue Blake	Interim Program Director, Strategic Resources and Quality, Sisters of Charity Health Service, St Vincent’s Hospital
Dr Mark Boughey	Physician, Melbourne City Palliative Care Service
Dr Kerrie Clark	Medical Oncologist, Wodonga
Ms Christine Delany	Consumer representative
Dr Ros Drummond	Radiation Oncologist, Peter MacCallum Cancer Centre
Ms Gillian Farrell	Reconstructive Surgeon, Royal Melbourne Hospital
Ms Jane Fox	Surgeon, Monash BreastScreen
Dr Judith Hammond	General practitioner
Dr Michael Montalto	Director, Hospital in the Home, Epworth Hospital
Ms Suzanne Phillips	Consumer representative
Ms Meron Pitcher	Surgeon, Western Hospital
Professor Alan Rodger	Radiation Oncologist, Alfred Hospital
Dr Penny Schofield	Psychologist, Peter MacCallum Cancer Centre
Ms Kerry Shanahan	Breast Care Nurse, Royal Melbourne Hospital
Dr Ray Snyder	Medical Oncologist, St Vincent’s Hospital

***Follow-up working party***

**Role:** To consider issues of quality across the domains of quality incorporating all follow-up activities, surveillance and support until the time of full recovery, remission or death and to propose areas for indicator development. To contribute to the assessment and refinement of the indicators to a final set for pilot testing.

**Membership:**

Dr David Blakey	Radiation Oncologist, Peter MacCallum Cancer Centre
Ms Andrea Cannon	Breast Care Nurse, Peter MacCallum Cancer Centre
Dr Jackie Chirgwin	Medical Oncologist, Box Hill Hospital
Dr Dallas English	Epidemiologist, The Cancer Council Victoria
Dr Jill Evans	Radiologist, Monash BreastScreen
Associate Professor Michael Henderson	Surgeon, Peter MacCallum Cancer Centre
Ms Fairlie Howard	Consumer representative
Ms Carrie Lethborg	Palliative Care Physician, St Vincent's Hospital
Ms Jill Linklater	Director, Clinical Services Nursing, Barwon Health Service
Ms Suzanne Neil	Surgeon, Mercy Private and Monash BreastScreen
Ms Suzanne Phillips	Consumer representative
Ms Annabelle Pollard	Psychologist, Peter MacCallum Cancer Centre
Dr Angela Rutherford	General practitioner

**Issue-specific working parties – examination of select measures prior to finalising pilot set**

**Role:** To determine the suitability of a series of specific draft indicators for inclusion as a part of the pilot set

***Information provision working party***

**Role:** To re-examine indicators in relation to the provision of information to women at the time of presentation to a breast service prior to diagnosis and at the time of a diagnosis of breast cancer. To consider issues of greatest importance for quality measurement in the provision of information to women at these times, including the limitations of measures due to definitional, collection and content validity issues.

**Membership:**

Ms Nicola Bruce	Consumer representative
Ms Elise Davies	Manager, Cancer Coordination Unit
Ms Spiri Galetakis	Project Officer, Inner and Eastern Breast Services Enhancement Program
Ms Julie Harris	Nurse/Counsellor, Bendigo Regional BreastScreen
Ms Sheila Hirst	Manager, Western Breast Services Alliance Breast Services Enhancement Program
Ms Sue Lockwood	BreastScreen Victoria Incorporated project team member and consumer representative
Ms Mary Macheras-Magias	Consumer representative
Ms Di Missen	Project Manager, 'BreaCan' Consumer Information Centre
Ms Nicole Steers	Manager, Gippsland Breast Services Enhancement Program
Ms Nerida Woodcock	Project Officer, Hume Breast Services Enhancement Program

***Multidisciplinary care working party***

**Role:** To re-examine the draft indicator relating to the provision of multidisciplinary care for women with breast cancer and the problems in relation to definition, data collection, variations in practice and quality measurement and to define key elements of the indicator and recommend mechanisms to capture meaningful information

**Membership:**

Dr Prue Allan	Pathologist, Victorian Cytology Service
Mr Brian Collopy	BreastScreen Victoria Inc. project team member
Ms Elise Davies	Manager, Cancer Coordination Unit
Dr Ros Drummond	Radiation Oncologist, Peter MacCallum Cancer Centre
Ms Bronwyn Flanagan	Breast Care Nurse, The Royal Melbourne Hospital
Professor Michael Green	Medical Oncologist, Royal Melbourne Hospital
Associate Professor Michael Henderson	Surgeon, Peter MacCallum Cancer Centre
Ms Jane Jones	Manager, Barwon and South Western Region Breast Services Enhancement Program
Ms Meron Pitcher	Surgeon, Western Hospital
Ms Chris Scott	Manager, Inner and Eastern Breast Services Enhancement Program
Mr John Snowdon	Corporate Counsel, Southern Health
Mr Bruce Tulloh	Surgeon, Echuca

***GP communication working party***

**Role:** To re-examine indicators relating to the timely provision of information to general practitioners about diagnosis and the management of breast cancer. To consider issues of greatest importance for quality measurement in the provision of information to general practitioner at these times, including the limitations of measures due to definitional, collection and content validity issues

**Membership:**

Ms Monica Byrnes	Manager, North Eastern Breast Services Enhancement Program
Ms Genevieve Chappell	BreastScreen Victoria Incorporated project team member
Ms Elise Davies	Manager, Cancer Coordination Unit
Mr Bruce Mann	Surgeon, The Royal Melbourne Hospital
Dr Ines Rio	GP Liaison Officer, Royal Women's Hospital
Dr Angela Rutherford	General practitioner

***Women with advanced disease working party***

**Role:** To re-examine indicators relating to women with advanced disease and specifically the problems in relation to patient identification, data collection and quality measurement issues

**Membership:**

Ms Chris Birrell	Manager, Grampians Breast Services Enhancement Program
Dr Mark Boughey	Physician, Melbourne City Palliative Care Service
Dr Jacquie Chirgwin	Medical Oncologist, Box Hill Hospital
Ms Elise Davies	Manager, Cancer Coordination Unit
Ms Mary Harvey	Project worker (oncology nursing and research background)
Ms Fairlie Howard	Consumer representative
Ms Jackie McLeod	Manager, Health Information Services, Northern Hospital
Ms Donna Milne	Research Fellow, Cancer Nursing Research, Peter MacCallum Cancer Centre
Dr Lisa Newton	General practitioner
Ms Anne Pennington	Consumer representative
Ms Chris Scott	Manager, Inner and Eastern Breast Services Enhancement Program

**Wider stakeholder group**

Wider consultation was also incorporated throughout the project. All organisations and individuals identified were provided with information on the project's aims and objectives, the details of the areas being considered for potential indicator development, the draft indicators prior to pilot testing and the final recommended set. Opportunities to comment on the progress of the project were provided at each point of contact. This consultation was useful in identifying additional issues for consideration by the working parties and assisting in determining the appropriateness and acceptability of the draft indicators as they were developed and then finalised.

**Membership:**

Angliss Hospital	Dr Chris Bessell, Medical Director
Australian Cancer Network	Emeritus Professor Tom Reeve, Executive Officer
Australian Cancer Registries:	
Australian Capital Territory	Mr Bruce Shadbolt, Director
Northern Territory	Dr John Condon, Director
New South Wales	Professor Bruce Armstrong, Director, Cancer Research and Registers Division, New South Wales Cancer Council
Queensland	Dr Ian Ring, Director
South Australia	Dr Peter Chapman, Director
Tasmania	Dr Alison Venn, Director
Victoria	Dr Graham Giles, Director, Cancer Control Research Institute, Cancer Epidemiology Centre
Western Australia	Dr Tim Threlfall, Director
Australian Cancer Society	Emeritus Professor Tom Reeve

The Cancer Council of Victoria	Professor Gordon Clunie, Senior Medical Consultant Ms Helen Farrugia, Programs Manager, Cancer Control Research Institute, Cancer Epidemiology Centre Ms Dorothy Reading, Director, Cancer Education Unit
Australian Council on Healthcare Standards	Mr Brian Johnston, Chief Executive Dr Marjorie Pawsey, Executive Manager Ms Kay Richards, Team Leader, Performance and Outcomes Service
Australian Institute of Health and Welfare	Mr Richard Madden, Director Mr John Harding, Health Registers and Cancer Monitoring Unit
Australian Institute of Radiography	Ms Marilyn Baird, Chairperson, Victorian Branch
Australian Medical Colleges:	
Royal Australian and New Zealand College of Radiologists	Mr Les Apolony, Chief Executive Officer Dr Winston Chong, Chairperson, Victorian Branch Dr Liz Kenny, Dean, Faculty of Radiation Oncology
Royal Australian College of General Practitioners	Mr Paul Hemming, President Ms Teri Snowdon, State Manager, Victoria
Royal Australasian College of Medical Administrators	Dr John Sparrow, President Dr Peter Bradford, Chair, Victorian Branch Mr Bob Bishop, Registrar
Royal Australasian College of Physicians	Dr Robin Mortimer, President Ms Franca Marine, Executive Officer, Medical Oncology Group
Royal Australasian College of Surgeons	Dr Vin Massaro, Chief Executive Officer Miss Meron Pitcher, Chair, Victorian State Committee
Royal College of Pathologists of Australasia	Dr Debra Graves, Chief Executive Office
Breast Cancer Action Group	Ms Sue Lockwood, Chair
Breast Cancer Network Australia	Ms Lyn Swinburne, National Coordinator

## BreastCare Victoria – Breast Services Enhancement Programs:

Barwon South West	Professor Richard Bell, Clinical Coordinator Ms Jane Jones, Program Manager
Gippsland	Mr David Birks, Clinical Coordinator Ms Nicole Steers, Program Manager
Grampians Region	Mr Ian Graham, Acting Clinical Coordinator Ms Christine Birrell, Program Manager
Hume Region	Mr Mark Eastman, Clinical Coordinator Ms Kate Cuss, Program Manager
Inner and Eastern	Professor Alan Rodger, Clinical Coordinator Ms Chris Scott, Program Manager
Loddon Mallee	Mr Bruce Tulloh, Clinical Coordinator Mr Graeme Campbell, Clinical Coordinator Ms Philippa Hartney, Program Manager, North Western Breast Service Alliance Mr Bruce Mann, Clinical Coordinator Ms Sheila Hirst, Program Manager
Southern Health	Mr Derek Richmond, Clinical Coordinator Ms Louise Bowen, Program Manager
North Eastern Metropolitan	Associate Professor Michael Henderson, Clinical Coordinator Ms Monica Byrnes, Program Manager
BreastScreen Australia National	Dr Mary Rickard, Director, Central and Eastern Sydney BreastScreen
Advisory Committee members:	Dr Paul Glasziou, Department of Social and Preventative Medicine, University of Queensland Associate Professor Rob Carter, Senior Research Fellow, Austin and Repatriation Medical Centre, Centre for Health Program Evaluation

## BreastScreen Australia state and territory programs:

BreastScreen ACT	Ms Helen Sutherland, Director
BreastScreen SA	Ms Prue Sutton, Manager, Screening Support and Evaluation Ms Lou Williamson, Program Manager
BreastScreen NSW	Ms Ann Brassil, Program Manager
BreastScreen NT	Ms Karen Finch, Program Manager
BreastScreen Queensland	Ms Jennifer Muller, Manager
BreastScreen Tasmania	Ms Valerie Gardner, Manager
BreastScreen WA	Dr Liz Wylie, Medical Director

National Cancer Control Initiative	Professor Mark Elwood, Director
National Health and Medical Research Council National Breast Cancer Centre	Professor Christine Ewan, Director
Palliative Care Victoria	Ms Margaret Box, Executive Officer
Sisters of Charity Health Service	Mr Neil Greenaway, Program Director, Health Support Services
Tasmanian Department of Health and Human Services	Dr David Boadle, Chief Health Officer, Strategic Development Division
The Cancer Council Australia	Professor Alan Coates
Victorian Clinical Oncology Group Breast Study Committee	Mr Stewart Hart, Chair Mrs Susan Fitzpatrick, Executive Officer
Women's Hospitals Australasia	Ms Anne Cahill, National Director

## Appendix C

### Tools for indicator development, assessment and refinement

Domains of quality and key indicator attributes represented essential tools for developing and refining indicators throughout the project.

**Domains of quality** were used to guide the identification of important quality issues across the continuum of care for which performance indicators might be developed. At later stages of the project, the list of indicators was regularly checked against the domains of quality to ensure coverage across the emerging set of all dimensions of quality.

The domains of quality considered were:

- **access** – the ability of individuals to obtain quality health care at the right place and right time
- **appropriateness** – the health care delivered is relevant to the patient’s needs and is based on agreed and established standards
- **safety** – the extent to which potential risks are avoided and inadvertent harm is minimised in care delivery processes
- **effectiveness** – the degree to which an episode of care provides a measurable increase in survival or improved quality of life (or improved outcomes) when routinely delivered
- **acceptability** – the extent to which the health care provided meets the needs and expectations of patients and carers
- **continuity of care** – the extent to which episodes are coordinated and integrated into overall care provision
- **efficiency** – the extent to which benefits or outcomes are maximised for a given cost (Department of Human Services, 2002).

The project team defined **key indicator attributes** for assessing indicators across a series of important dimensions. The project team undertook an assessment exercise prior to pilot testing, estimating the value for each of six attributes. This process significantly refined the large number of draft indicators prior to the pilot testing phase. With the information from the pilot testing exercise, the project team could estimate with greater confidence the score against many of these attributes for the indicators piloted. The project team revised the scoring of the indicators to reflect an improved understanding. This process allowed the project team to rank piloted indicators in order of ‘value’.

The attributes against which the project team scored the draft indicators prior to pilot testing are:

- **clinical significance:**
  - **evidence base** – the extent to which the issue the indicator covers is supported by evidence
  - **burden (cost/volume/concern)** – the extent to which the indicator addresses an aspect of care in terms of cost, volume and community concern
  - **content validity** – the extent to which the indicator reflects quality care
- **data value:**
  - **definability** – the extent to which the elements of the indicator can be clearly defined without ambiguous or subjective terms
  - **accessibility** – the extent to which the data elements required for the indicator definition can be readily collected from existing databases or be collected using specific data collection systems
  - **identifiability** – the extent to which the data elements of the indicator event and the denominator are readily identifiable and measurable
  - **reliability** – the extent to which the indicator results are accurate and reproducible
- **responsiveness:**
  - **potential to improve** – the extent to which an issue or problem the indicator identifies can be addressed.

Following the pilot testing phase of the project, the indicators were reassessed against the above attributes with the addition of one further item:

- **service assessment** – the views of the service staff about the indicator’s potential value and usefulness.

The relative weights given to each attribute in the pre- and post-pilot assessment process are included in brackets in Table 3.

**Table 3: Indicator attributes**

Indicator attributes (weighting)	
Pre-pilot assessment	Post-pilot assessment
Clinical significance:	Clinical significance:
• evidence base (5)	• evidence base (5)
• burden (cost/volume/concern) (5)	• burden (cost/volume/concern) (5)
• content validity (5)	• content validity (5)
Data value:	Data value:
• definable, accessible, identifiable (5)	• definable, accessible, identifiable (5)
• reliable (5)	• reliable (5)
Responsiveness:	Responsiveness:
• potential to improve (10)	• potential to improve (5)
	Service assessment:
	• value indicated by pilot sites (10 for core indicators; 5 for non-core indicators)

The views of stakeholders on project working parties and committees informed the scoring against each attribute prior to pilot testing. This process was largely theoretical and based in many cases on assumptions as to the likely significance and value of the measures in practice. The pilot data informed a number of these elements, allowing an informed reassessment process. The principles underpinning the post-pilot reassessment are:

- **evidence base.** The evidence base for the indicators has not altered as a result of the pilot process.
- **burden.** The volume of the event measured by each indicator was reconsidered in light of the pilot results. The level of burden in terms of concern has not altered.
- **content validity.** Measures were reassessed in terms of reflecting the provision of quality care.
- **data value.** The pilot results provide more robust information about the burden of collection of these measures in the field.
- **responsiveness.** The level of performance for each measure and the issues pilot sites raised about the ability to respond to identified events was considered and scoring revised.
- **service assessment.** The value placed by the services piloting each indicator was considered, taking into account responses about the usefulness of the indicator, whether it would be considered for regular monitoring, whether results would prompt action to effect change if needed, and overall ratings provided by pilot sites for each indicator.

The scores for the piloted indicators against these attributes prior to and after pilot testing are included in the results by indicator section at Appendix D.

## Appendix D

### Results by indicator for pilot set

#### Pilot indicator 1: Percentage of new breast clinic patients seen within ten working days of request for appointment date

**Indicator area:** Presentation and diagnostic process

**Domain of quality:** Access

**Numerator:** The number of new breast clinic patients seen within ten working days of request for appointment date during the time period under study

**Denominator:** The total number of new breast clinic patients seen during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
12	9	581	652	89	87	76-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	1	1
Burden (/5)	4	4
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	5	3.5
Reliable (/5)	4	4
Potential to improve (pre/10) (post/5)	8/10	2/5
Service assessment (/10)	N/A	8
Total score (%)	74	66

*'...collecting data for this indicator...enabled our practices to be reviewed, with most clients receiving appointments within the ten day period.'* Site 11

*'... Should the waiting time blow out, the indicator would be useful in arguing for additional resources ...'* Site 8

*'The positive outcome from this indicator suggests that current clinical practice is acceptable, although the patient numbers are low ...'* Site 9

The post-pilot assessment resulted in a total score of 66 per cent compared with a pre-pilot 74 per cent due to lower scores for data values and potential to improve. The data items were not readily available. Compliance for this indicator was high for the nine participating sites. The other three sites are without diagnostic services and depend on private providers; access to this data is restricted. The pilot sites gave this indicator a high score, with all agreeing the data were useful, they would distribute the information to others, and it would be useful for regular monitoring.

## Pilot indicator 2: Percentage of patients having contact with a breast care nurse between being informed of a diagnosis of breast cancer and having definitive surgery

**Indicator area:** Supportive care

**Domain of quality:** Appropriateness and acceptability

**Numerator:** The number of patients having contact with a breast care nurse between being informed of a diagnosis of breast cancer and undergoing definitive surgery, separated during the time period under study

**Denominator:** The total number of patients who have definitive surgery for breast cancer, separated during the time period under study

### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
12	12	156	212	74	86	0-100

### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	5	5
Burden (/5)	5	5
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	3	4
Reliable (/5)	3	4
Potential to improve (pre/10) (post/5)	8/10	4/5
Service assessment (/10)	N/A	8
<b>Total score (%)</b>	80	85

*'... an appropriate indicator of supportive care.'* Site 4

*'... disappointed that despite this support being given by the Breast Care Nurse we have no record to back this up. [Site] to implement change to our recording immediately and will monitor adherence to this change over time.'* Site 7

*'Depending on the success of our BCN [Breast Care Nurse] business case, future data will either demonstrate a continuing gap in service or will demonstrate improvements in access to a BCN [Breast Care Nurse].'* Site 5

The outcome of the post-pilot assessment was a total score of 85 per cent, compared with a pre-pilot 80 per cent due to the increased score for the data value attributes. All 12 sites reported the data were accessible but the exercise did prompt the need for better recording of contact in the medical record. The pilot sites scored this indicator quite high, with all except one agreeing the data were useful, they would distribute the information to others, and it would be useful for regular monitoring. The exception has a well functioning Breast Care Nurse service and sees no value in having this confirmed.

### Pilot indicator 3: Percentage of histopathology reports post definitive surgery for invasive breast cancer, which contain complete information

**Indicator area:** Management planning

**Domain of quality:** Safety and efficiency

**Numerator:** The number of histopathology reports with complete information for patients undergoing definitive surgery for invasive breast cancer, separated during the time period under study

**Denominator:** The total number of histopathology reports for patients undergoing definitive surgery for invasive breast cancer, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
12	12	161	200	81	94	56-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	1	1
Burden (/5)	5	5
Content validity (/5)	4	5
Definable, identifiable, accessible (/5)	5	5
Reliable (/5)	3	4
Potential to improve (pre/10) (post/5)	8/10	3/5
Service assessment (/10)	N/A	7
Total score (%)	74	75

*'We did not find this indicator of any value. Currently we use synoptic reporting and it is immediately obvious if any information is missing to both the pathologist and the clinicians.'* Site 10

*'This indicator should reach 100 per cent compliance as a baseline.'* Site 3

The total post-pilot score of 75 per cent was just higher than the pre-pilot score of 74 per cent. Post-pilot content validity and data reliability increased. All 12 sites had systems in place to identify patients and 11 of the 12 sites reported the use of synoptic reporting. Potential to improve decreased as there was a high compliance by the majority of sites. The service assessment score was high. Responses about the value and usefulness of the indicator varied; those sites with a high percentage of completeness saw little need for regular monitoring.

#### Pilot indicator 4: Percentage of specimens from definitive surgery for breast cancer, with clear histological margins

**Indicator area:** Definitive surgery

**Domain of quality:** Safety and effectiveness

**Numerator:** The number of histopathology reports reporting clear margins for patients undergoing definitive surgery for breast cancer and separated during the time period under study

**Denominator:** The total number of histopathology reports for patients undergoing definitive surgery for breast cancer, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
12	12	156	212	74	86	0-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	3	3
Burden (/5)	4	4
Content validity (/5)	4	5
Definable, identifiable, accessible (/5)	4	4
Reliable (/5)	4	4
Potential to improve (pre/10) (post/5)	8/10	3/5
Service assessment (/10)	N/A	8
Total score (%)	77	78

*'... the definition of this indicator ... demonstrates a lack of understanding of margins. The standard ... in our unit is to remove breast tissue down to the deep fascia and up to the subcutaneous tissue. [Then] neither the deep margin nor the superficial margin can be improved except in ... a patient with either skin invasion or deep muscular invasion. Both of these ... would be recognised clinically ... as ... advanced breast cancer ...'* Site 10

*'Very useful surgical indicator but further clarity is needed on what constitutes an incomplete margin, that is, where skin or chest wall is involved.'* Site 8

There was only 1 per cent increase in the post-pilot total score over the 77 per cent pre-pilot score. The post-pilot content validity increased. All but two of the 12 sites reported data items were readily available from existing systems, but a stated minimum width of clearance was requested. The post-pilot potential to improve decreased because of the relatively high compliance by the majority of sites. The service assessment score was high. While the majority of sites reported the indicator provided them with useful information about their service, all sites reported they would not take any action or implement change as a result of monitoring this indicator. Site 10 (result: 83 per cent) did, however, state if the rate of positive margins did rise, this would be an indication to look at surgeon performance and case distribution.

**Pilot indicator 5: Percentage of invasive breast cancer patients with evidence of a multidisciplinary team management discussion having taken place (as defined by an agreed local protocol)**

**Indicator area:** Management planning

**Domain of quality:** Appropriateness and efficiency

**Numerator:** The number of patients having definitive treatment for invasive breast cancer and separated during the time period under study, with evidence the case was discussed by a multidisciplinary team

**Denominator:** The total number of patients having definitive treatment for invasive breast cancer, separated during the time period under study

**Indicator results**

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
12	10	131	191	69	73	0-100

**Assessment of indicator by key attributes**

	Pre-pilot	Post-pilot
Evidence base (/5)	1	1
Burden (/5)	5	5
Content validity (/5)	4	5
Definable, identifiable, accessible (/5)	5	5
Reliable (/5)	3	4
Potential to improve (pre/10) (post/5)	8/10	3/5
Service assessment (/10)	N/A	7
Total score (%)	74	75

*'This indicator highlighted the need for formalising our current work practices. We do practise multidisciplinary care ... it is not documented.'* Site 11

*'... thought may have to be given to establishing a mechanism where there is discussion and documentation of same, with a radiation and medical oncologist.'* Site 4

*'[The]MD [multidisciplinary] team management process was reviewed. We implemented a stamp to collect the data to enable easy identification ... Outgoing correspondence details that the patient was discussed ... We have reviewed our TOR [terms of reference] for the MD meeting.'* Site 6

The post-pilot total score of 80 per cent was significantly higher than the pre-pilot score of 66 per cent. The post-pilot data value scores and the potential to improve increased, with the majority of sites reporting the data were easily available. There were issues about the absence or inconsistency of documentation, which can be addressed. The poor compliance is reflected in the maximum post-pilot score for potential to improve. The service assessment was very high, with all sites agreeing with the overall usefulness of the indicator and only one site not considering it suitable for regular monitoring in the future.

### Pilot indicator 6: Percentage of new breast clinic patients informed of a definitive diagnosis within ten working days of first appointment

**Indicator area:** Diagnostic process

**Domain of quality:** Acceptability and efficiency

**Numerator:** The number of new breast clinic patients informed of a definitive diagnosis within ten working days of their first appointment, during the time period under study

**Denominator:** The total number of new breast clinic patients seen during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	2	187	197	95	93	87-99

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	2	2
Burden (/5)	4	3
Content validity (/5)	5	3
Definable, identifiable, accessible (/5)	3	2
Reliable (/5)	3	2
Potential to improve (pre/10) (post/5)	7/10	2/5
Service assessment (/10)	N/A	2
Total score (%)	69	46

*‘Collected a copy of the clinic form and set up an Excel spreadsheet to record the indicator.’ Site 3*

*‘Highlighting the reasons for delay in provision of diagnosis may benefit the Breast Unit service.’ Site 4*

The assessment of this indicator changed significantly from a pre-pilot score of 69 per cent to a post-pilot score of 46 per cent. There was a post-pilot decrease for all but one of the attributes. The data were difficult or impossible to collect for sites without diagnostic services; this is unlikely to improve unless data for privately diagnosed patients are made available. Compliance was high for the two sites able to collect the data. The service assessment score for this indicator was low. One site found data collection time-consuming, but considered it provided useful information and would be suitable for ongoing monitoring. The other site found the data items easily available, but thought the indicator did not provide useful information and would not be useful for ongoing monitoring.

### Pilot indicator 7: Percentage of localised impalpable breast lesions for which specimen radiography has been undertaken

<b>Indicator area:</b>	Diagnostic process
<b>Domain of quality:</b>	Appropriateness and safety
<b>Numerator:</b>	The number of localised impalpable breast lesions having specimen radiography, after excision, in patients separated during the time period under study
<b>Denominator:</b>	The total number of patients having localised impalpable breast lesions excised for identification, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	78	86	91	93	50-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	2	2
Burden (/5)	4	3
Content validity (/5)	3	2
Definable, identifiable, accessible (/5)	4	2
Reliable (/5)	4	2
Potential to improve (pre/10) (post/5)	7/10	2/5
Service assessment (/10)	N/A	2
<b>Total score (%)</b>	69	43

*'Specimen radiology of localisation of a breast lump is standard practice. This performance indicator does not measure quality of anything. It would be more appropriate to consider whether the lesion being excised was found in the radiograph.'* Site 3

*'This is a reasonable Key Performance Indicator although there are better measures of diagnostic process.'* Site 4

The total score for this indicator dropped from a pre-pilot 69 per cent to a post-pilot 43 per cent. All but one of the key attributes scores decreased in the post-pilot assessment. Specimen radiography, although having an ICD-10-AM code allocated, was not routinely documented or coded at pilot sites, resulting in the need for more time-consuming processes to identify patients. Decrease in post-pilot burden and potential to improve reflect high compliance. The pilot sites scored this indicator poorly. Comments about the usefulness of the indicator and its role in future monitoring were mixed, with most of the sites not viewing it as a prompt for action or change and only two of the sites considering it suitable for ongoing monitoring.

### Pilot indicator 8: Percentage of patients undergoing a diagnostic open breast biopsy who are found to have a benign result

**Indicator area:** Diagnostic process

**Domain of quality:** Appropriateness, effectiveness and efficiency

**Numerator:** The number of patients with a benign result from diagnostic open breast biopsy, separated during the time period under study

**Denominator:** The total number of patients undergoing an open diagnostic breast biopsy, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	3	37	55	67	62	50-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	1	7
Burden (/5)	3	3
Content validity (/5)	4	3
Definable, identifiable, accessible (/5)	4	3
Reliable (/5)	5	4
Potential to improve (pre/10) (post/5)	7/10	5/5
Service assessment (/10)	N/A	2
Total score (%)	69	60

*'The data from this period indicates that the benign-malignant rate is much higher than recommended ... a larger time period and ... more clients would provide more accurate information.'* Site 2

*'... for this KPI [Key Performance Indicator], it is not only the percentage of open biopsies that are benign, but the proportion of all breast operations that are benign that is a measure of the quality of the service.'* Site 4

The total score dropped from a pre-pilot 69 per cent to a post-pilot 60 per cent. The content validity and data value attributes decreased, but the potential to improve increased to the maximum. The purpose of this indicator was to monitor unnecessary diagnostic surgical procedures, but the ICD-10-AM code does not distinguish between diagnostic biopsy and excision of lesion. All cases identified were manually reviewed to exclude those where the diagnosis was known prior to the procedure; however, it is not always straightforward to determine whether the diagnosis was clearly known or in the process of being confirmed by the biopsy. This data collection complication caused a drop in post-pilot data value scores. A lower proportion of benign biopsies than expected were reported, increasing the potential to improve the score. Service assessment by pilot sites was low. While all sites regarded the indicator as providing useful information, only two sites viewed it as being a prompt for further quality activities and only two sites regarded it as suitable for regular monitoring.

### Pilot indicator 9: Percentage of patients having definitive surgery for invasive breast cancer with defined indications for radiotherapy who are referred to a radiation oncologist

<b>Indicator area:</b>	Adjuvant treatment
<b>Domain of quality:</b>	Appropriateness and continuity of care
<b>Numerator:</b>	The number of patients having definitive surgery for invasive breast cancer separated during the time period under study who are referred to a radiation oncologist for defined indications
<b>Denominator:</b>	The total number of patients having definitive surgery for invasive breast cancer who have defined indications for radiotherapy, separated during the time period under study

### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	3	56	57	98	100	93-100

### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	5	5
Burden (/5)	4	2
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	3	3
Reliable (/5)	3	3
Potential to improve (pre/10) (post/5)	8/10	1/5
Service assessment (/10)	N/A	3
Total score (%)	77	60

*'Input from both radiation oncologists and surgical oncologists suggests that the last two [defined indications] ... are controversial ...' Site 4*

*'... Now with the changes to the form that was developed all patients are routinely considered at the multidisciplinary review meetings.' Site 3*

There was a significant drop in the total score from 77 per cent pre-pilot to 60 per cent post-pilot. This was due to a decrease in the burden from four to two and in the potential to improve from high to very low. This outcome reflects the high rate of referral (56/57) which corresponds with the increasing use of radiotherapy in patients with breast conserving surgery over time. Sites scored this indicator high, with all agreeing they would consider this indicator for regular monitoring.

### Pilot indicator 10: Percentage of invasive breast cancer patients diagnosed with febrile neutropaenia following administration of chemotherapy, requiring admission to hospital for an overnight stay

<b>Indicator area:</b>	Adjuvant treatment
<b>Domain of quality:</b>	Appropriateness and safety
<b>Numerator:</b>	The number of invasive breast cancer patients with febrile neutropaenia following administration of chemotherapy, requiring admission to hospital for an overnight stay, separated during the time period under study
<b>Denominator:</b>	The total number of invasive breast cancer patients receiving chemotherapy, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	9	157	6	4	0-15

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	2	2
Burden (/5)	3	3
Content validity (/5)	3	3
Definable, identifiable, accessible (/5)	4	3
Reliable (/5)	4	3
Potential to improve (pre/10) (post/5)	8/10	1/5
Service assessment (/10)	N/A	4.5
Total score (%)	69	56

*'It is a relevant indicator of quality of adjuvant chemotherapy treatment.'* Site 4

*'The collection of this indicator was based on admissions to [the hospital]. However, clients come from numerous outlying rural areas and may attend smaller local hospitals instead of travelling back to [the hospital]. Due to limitations of resources it was impossible to check for admissions to all of these outlying hospitals.'* Site 2

The total score dropped from pre-pilot 69 per cent to post-pilot 56 per cent due to a drop in data attributes scores and in the potential to improve score from high to very low. All four sites considered the data elements easily available using ICD-10-AM codes, but one site included additional patients consistent with local protocol. Site 2 reported being unable to identify all patients because some might report to other institutions for treatment. Results confirm this as a low frequency event with little potential to improve. Service assessment was very high, with all sites agreeing they would consider the indicator for regular monitoring in their quality programs.

### Pilot indicator 11: Percentage of patients receiving a definitive diagnosis of breast cancer without an open biopsy

<b>Indicator area:</b>	Diagnostic process
<b>Domain of quality:</b>	Appropriateness, effectiveness and efficiency
<b>Numerator:</b>	The number of patients diagnosed with breast cancer without an open biopsy, separated during the time period under study
<b>Denominator:</b>	The total number of patients diagnosed with breast cancer, separated during the time period under study

### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	24	25	96	100	80-100

### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	1	1
Burden (/5)	4	2
Content validity (/5)	4	3
Definable, identifiable, accessible (/5)	4	3
Reliable (/5)	3	3
Potential to improve (pre/10) (post/5)	6/10	2-5
Service assessment (/10)	N/A	1
<b>Total score (%)</b>	63	43

*'...much of the diagnostic work is done off site and it is more difficult to assess quality of this work.'* Site 5

*'The numbers are too small to warrant performing further quality activities. ... the majority of patients do in fact have biopsies performed prior to an inpatient admission. Perhaps the only further quality activity to result from monitoring this clinical indicator would be to ensure that a copy of the biopsy report is included in the medical record.'* Site 8

The total score dropped from 63 per cent pre-pilot to 43 per cent post-pilot. The low frequency and very high compliance (24/25) resulted in reduced post-pilot score for burden and potential to improve, respectively. Two sites reported the data items were easily available, but two had difficulty because of lack of documentation for patients whose diagnostic procedures had been performed outside the hospital. Sites scored service assessment very low. Sites 5 and 6 reported they would consider the indicator for future regular monitoring and sites 7 and 8 did not. While the latter acknowledged this to be an important surgical indicator, they did not regard it as a local issue of concern given access to mammotome and stereotactic core biopsies.

### Pilot indicator 12: Percentage of invasive breast cancer patients who had staging undertaken and documented in the medical record before being referred for adjuvant therapy

**Indicator area:** Management planning

**Domain of quality:** Appropriateness and efficiency

**Numerator:** The number of patients undergoing definitive surgery for invasive breast cancer with evidence that staging was undertaken prior to referral for adjuvant therapy, separated during the time period under study

**Denominator:** The total number of patients who have undergone definitive surgery for invasive breast cancer and been referred for adjuvant therapy, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	31	42	74	74	20-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	2	2
Burden (/5)	5	5
Content validity (/5)	4	2
Definable, identifiable, accessible (/5)	3	2
Reliable (/5)	3	2
Potential to improve (pre/10) (post/5)	6/10	3/5
Service assessment (/10)	N/A	2
Total score (%)	66	51

*'The information was not well documented in the progress notes ... correspondence from the medical oncologist ... [was] ... the most useful source of data for this particular clinical indicator.'* Site 8

*'That staging information, whilst obviously performed, is not well documented in the medical record, apart from in correspondence from the medical oncologist.'* Site 7

The total score dropped from 66 per cent pre-pilot to 51 per cent post-pilot. Two sites found data items easily available, while at the other two sites information was not well documented in the progress notes. The content validity and data items ratings were reduced post-pilot. Sites rated service assessment as low. While they all reported the indicator provided them with useful information, none of them felt it would prompt them to undertake any quality activities as a result of the monitoring. Sites 7 and 8 felt the results of the indicator reflected inadequate documentation rather than inadequacies in the service provided.

### Pilot indicator 13: Percentage of patients whose general practitioner was sent management information within ten working days of discharge following definitive surgery for breast cancer

**Indicator area:** Management planning

**Domain of quality:** Appropriateness, acceptability and continuity of care

**Numerator:** The number of patients whose general practitioners are sent management information within ten working days of discharge following definitive surgery for breast cancer, discharged during the time period under study

**Denominator:** The total number of patients undergoing definitive surgery for breast cancer, discharged during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	47	49	96	97	80-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	1	1
Burden (/5)	4	4
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	2	3.5
Reliable (/5)	2	3.5
Potential to improve (pre/10) (post/5)	7/10	3.5/5
Service assessment (/10)	N/A	4.5
Total score (%)	57	69

*'...it may be useful to be more specific about the elements of the communication with GPs at different points, for example ... mandatory elements of GP communication at discharge and at first post-operative visit.'* Site 5

*'...this indicator should be amended to include the eight appropriate inclusions listed in the data dictionary.'* Site 7

*'Different levels of information are provided to GPs at different points in the care continuum. The discharge summary contains very basic information ...'* Site 5

The total score rose from 57 per cent pre-pilot to 69 per cent post-pilot due to score increases for data attributes. All four sites found the data items easily available. Service assessment of this indicator was rated very high. Three of the four sites regarded it as being a prompt for further quality activities and stated it would be useful in ongoing monitoring. For the purposes of the pilot, 'management information' was defined as consisting of at least one of eight identified components. Three of the sites were in favour of a more specific definition in the future in recognition of the importance of communication with general practitioners.

### Pilot indicator 14: Percentage of patients requiring an unplanned return to the operating room during an admission for breast cancer surgery for a problem related to that surgery

**Indicator area:** Definitive surgery

**Domain of quality:** Safety, efficiency and effectiveness

**Numerator:** The number of patients requiring an unplanned return to the operating room during the same admission for breast cancer surgery for a problem related to that surgery, separated during the time period under study

**Denominator:** The total number of patients who have undergone breast cancer surgery, separated during the time period under study

### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	1	49	2	0	0-6

### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	2	2
Burden (/5)	5	3
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	4	4
Reliable (/5)	4	4
Potential to improve (pre/10) (post/5)	8/10	2/5
Service assessment (/10)	N/A	2
Total score (%)	74	60

*'Would enable any unexpected rise in unplanned return to theatre to be identified readily.'* Site 5

*'... already collected [for] the ACHS [Australian Council on Health Care Standards] clinical indicator program ... useful to establish closer links with the hospital quality department [and] any breast patients identified through collection of this clinical indicator ... can be referred to the breast care team for discussion and action as necessary.'* Site 7

*'... did not really find this indicator useful as the return to OR unplanned was rare.'* Site 8

Total score dropped from 74 per cent pre-pilot to 60 per cent post-pilot, with lower post-pilot scores for burden and potential to improve. Four sites reported the information was easily available. Results confirm this to be a low frequency event with decreased potential to improve. The sites allocated a low service assessment score for this indicator. All sites reported the indicator provided them with useful information, although only two sites reported they would consider the indicator for ongoing use. A similar indicator exists within the suite of indicators reported to the Australian Council on Healthcare Standards.

### Pilot indicator 15: Percentage of invasive breast cancer patients with intermediate or high risk of recurrence who are referred to a medical oncologist

**Indicator area:** Adjuvant treatment

**Domain of quality:** Appropriateness

**Numerator:** The number of patients who, after undergoing definitive surgery for invasive breast cancer and separated during the time period under study, are assessed as at intermediate or high risk of recurrence and referred to a medical oncologist

**Denominator:** The total number of patients undergoing definitive surgery for invasive breast cancer and at intermediate or high risk of recurrence, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	33	39	85	88	60-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	3	3
Burden (/5)	4	4
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	3	3
Reliable (/5)	3	3
Potential to improve (pre/10) (post/5)	8/10	3/5
Service assessment (/10)	N/A	3
Total score (%)	71	66

*'...this [is] a duplication of the multidisciplinary meeting. All patients are discussed at this meeting and it provides a fail-safe mechanism for appropriate referral ...' Site 5*

*'... all our cases are discussed at the multidisciplinary meeting and referrals are generated from this discussion. Clinicians felt that this was a very relevant indicator and could prevent cases from potentially slipping through the system.' Site 8*

The post-pilot score of 66 per cent dropped from a pre-pilot score of 71 per cent due to the lower score for potential to improve. Data were easily available at two sites; the other two sites experienced problems relating to medical record format. Service assessment was high. All sites agreed the indicator provided useful information, but only one site reported they would consider it for use in ongoing monitoring activities. One site suggested this indicator was a duplication of the multidisciplinary meeting, which provides a 'fail-safe' mechanism for referral. Another site suggested, however, it was a good indicator to prevent cases from 'slipping through the system'.

### Pilot indicator 16: Percentage of patients diagnosed with breast cancer whose general practitioner has been notified of the diagnosis within two working days of the patient being informed

**Indicator area:** Management planning

**Domain of quality:** Appropriateness, acceptability and continuity of care

**Numerator:** The number of patients whose general practitioner has been notified within two working days of the patient being informed of a diagnosis of breast cancer, during the time period under study

**Denominator:** The total number of patients informed of a diagnosis of breast cancer, during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	2	0	21	0	0	0-0

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	1	1
Burden (/5)	3	2
Content validity (/5)	3	2
Definable, identifiable, accessible (/5)	2	1
Reliable (/5)	2	1
Potential to improve (pre/10) (post/5)	7/10	4/5
Service assessment (/10)	N/A	3
Total score (%)	51	40

*'...meetings with all stakeholders [decided] there was no way of tracking letters sent from BreastScreen to GPs ...' Site 9*

*'...our work practices [need] to be evaluated.... two days may have been an unachievable time frame ...' Site 11*

*'This is a somewhat problematic indicator... very few patients actually come without a diagnosis... Of these the majority in fact had a strong suspicion of cancer and were referred for appropriate management by their GP.' Site 10*

This represents the lowest total score for both pre- and post-pilot indicator assessments. Post-pilot burden, content validity and data value attributes dropped, while the potential to improve was slightly higher. The data items were easily available at the two participating sites, but neither site was able to meet the time component of the indicator. The other two sites, where the diagnostic process occurs externally, did not have access to data. Service assessment was high with site 10 reporting it would consider the indicator for regular use in ongoing monitoring. Site 11 did not agree because it felt the indicator was very time-consuming for very small numbers.

### Pilot indicator 17: Percentage of new patients who have one or more medical consultations between being informed of a definitive diagnosis of breast cancer and commencement of definitive treatment

**Indicator area:** Management planning

**Domain of quality:** Access, appropriateness and acceptability

**Numerator:** The number of new breast clinic patients having one or more medical consultations between being informed of a definitive diagnosis of breast cancer and commencement of definitive treatment during the time period under study

**Denominator:** The total number of new breast clinic patients commencing definitive treatment for breast cancer during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	3	27	43	63	77	35-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	2	2
Burden (/5)	5	4
Content validity (/5)	3	3
Definable, identifiable, accessible (/5)	4	4
Reliable (/5)	3	3
Potential to improve (pre/10) (post/5)	7/10	4/5
Service assessment (/10)	N/A	3
Total score (%)	69	66

*'The surgeons would be interested in the results of this indicator.'* Site 11

*'... It would be anticipated change will occur as a result of discussion with the multidisciplinary team.'* Site 9

*'... Because patient movement from GP to surgeon is private, we have no way of recording this.'* Site 12

The total post-pilot score of 66 per cent was a drop down from the 69 per cent pre-pilot score. The low numerator resulted in a lower score for post-pilot burden and the low compliance resulted in the increase in the potential to improve. Information was easily available from existing systems at all three sites. The site unable to participate does not provide diagnostic services. Service assessment was high. Two of the pilot sites reported the indicator provided useful information and all three sites stated they would distribute the indicator results to others within the service.

### Pilot indicator 18: Percentage of patients who have an unplanned readmission to hospital within 28 days of discharge following breast cancer surgery, with a complication related to that surgery

**Indicator area:** Definitive surgery

**Domain of quality:** Safety and effectiveness

**Numerator:** The number of patients who have an unplanned readmission to hospital within 28 days of discharge following breast cancer surgery with a complication related to that surgery, discharged during the time period under study

**Denominator:** The total number of patients undergoing breast cancer surgery, discharged during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	0	94	0	0	0-0

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	2	2
Burden (/5)	3	2
Content validity (/5)	3	3
Definable, identifiable, accessible (/5)	4	4
Reliable (/5)	3	3
Potential to improve (pre/10) (post/5)	8/10	1/5
Service assessment (/10)	N/A	4.
Total score (%)	66	54

*'Readmission within 28 days is already an indicator the hospital collects for all inpatient cases.'* Site 12

*'The lack of readmissions observed suggests a very limited utility for this indicator.'* Site 9

*'All patients undergoing surgical procedures are reviewed in the bi-weekly surgical audit meeting and in particular all complications are audited.'* Site 10

There was a significant drop in the total score, from 66 per cent pre-pilot to 54 per cent post-pilot. Decreases in scores for burden and potential to improve reflect the value of the denominator. All sites reported data were easily available from existing systems. Despite a very high service assessment, no pilot sites indicated they would consider this indicator for use in regular monitoring activities. Sites advised this information is already collected and reported to the Australian Council on Healthcare Standards.

### Pilot indicator 19: Percentage of invasive breast cancer patients with a positive hormone receptor status who receive hormonal treatment

<b>Indicator area:</b>	Adjuvant treatment
<b>Domain of quality:</b>	Appropriateness and continuity of care
<b>Numerator:</b>	The number of patients who have definitive surgery for invasive breast cancer, separated during the time period under study, with a positive hormone receptor status who receive hormonal treatment
<b>Denominator:</b>	The total number of patients who have definitive surgery for invasive breast cancer with a positive hormone receptor status, separated during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	31	35	89	94	67-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	5	5
Burden (/5)	4	4
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	4	3
Reliable (/5)	4	3
Potential to improve (pre/10) (post/5)	7/10	2/5
Service assessment (/10)	N/A	4
<b>Total score (%)</b>	<b>80</b>	<b>71</b>

*'...if this was an ongoing indicator a process could be set up to include this data with collection for other indicators ...' Site 10*

*'All clients who had a positive hormone receptor status on this study were going to commence on Tamoxifen ...' Site 11*

*'... proved that all women were having appropriate treatment.' Site 12*

The total score dropped from 80 per cent pre-pilot to 71 per cent post-pilot due to decreases in scores for data value items and potential to improve. The four sites reported patients were easily identified from existing systems. The service assessment score was very high, with all pilot sites agreeing the indicator provided useful information and three out of four sites indicating they would consider it for use in ongoing monitoring activities.

### Pilot indicator 20: Percentage of invasive breast cancer patients diagnosed with bone metastases receiving bisphosphonate treatment

**Indicator area:** Management of recurrent and advanced disease

**Domain of quality:** Appropriateness

**Numerator:** The number of invasive breast cancer patients diagnosed with bone metastases during the time period under study who received bisphosphonate treatment

**Denominator:** The total number of invasive breast cancer patients diagnosed with bone metastases during the time period under study

#### Indicator results

No. sites allocated	No. sites completing	Total numerator	Total denominator	Mean(%)	Median(%)	Range(%)
4	4	9	12	75	59	0-100

#### Assessment of indicator by key attributes

	Pre-pilot	Post-pilot
Evidence base (/5)	5	2
Burden (/5)	5	4
Content validity (/5)	4	4
Definable, identifiable, accessible (/5)	3	2
Reliable (/5)	4	2
Potential to improve (pre/10) (post/5)	8/10	3/5
Service assessment (/10)	N/A	3
Total score (%)	83	66

*'... If data systems allow, this will be maintained routinely.'* Site 9

*'After several attempts to best collect this data it was decided to modify the denominator ... to total number of invasive breast cancer patients diagnosed by bone scan [at this site] ...'* Site 10

*'It took a lot of time cross checking records ...'* Site 11

The total score dropped from 83 per cent pre-pilot to 66 per cent post-pilot due to lower post-pilot scores for burden, data value and potential to improve. Numbers were very small. There was no easy way to identify patients; combinations of systems and manual review of records were required. One site modified the denominator. The service assessment was positive, but most of the pilot sites did not consider the indicator provided them with useful information.

## Appendix E

### Data dictionary for recommended set of indicators

The data dictionary for the recommended set of indicators follows. The dictionary is presented in two sections:

- rate-based measures
- critical events.

A glossary of terms used in the dictionary is at the end of the data dictionary.

#### Rate-based measures

##### Indicator number: 1

Indicator:	Percentage of new breast clinic patients seen within 14 calendar days of request for appointment date
Indicator area:	Presentation and diagnostic process
Domain of quality:	Access
<b>Indicator rationale:</b>	Good patient management involves ‘minimising waiting times for appointments, treatments and results’ (National Health and Medical Research Centre, 2001 a).

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**Numerator:** *The number of new breast clinic patients seen within 14 calendar days of request for appointment date during the time period under study*

**Denominator:** *The total number of new breast clinic patients seen during the time period under study*

**Definition of terms:** **The following terms have been defined for the purpose of monitoring this indicator:**

New	Attending breast clinic for the first time or attending breast clinic for a new complaint (usually one to two years after the first attendance)
Breast clinic	A dedicated breast unit or other relevant clinic or general surgical clinic where patients with breast problems are seen
Seen	Attending and being assessed by a medical consultant
Within 14	Fourteen or less than fourteen
Calendar days	Days including weekends and public holidays
Request for appointment date	The date the appointment request was received by the provider from the patient, general practitioner or specialist. This will usually be the date the booking was made on the clinic appointment system. A request might be made by phone, fax, email, in person or via letter.

**Inclusions:** Male and female patients  
Patients with new appointment for recurrent disease

**Exclusions:** Patient-initiated delays

**Useful data elements for monitoring this indicator:**

- unit record number
- clinic appointment date
- clinic name and code
- clinic doctor name and code
- clinic appointment type
- clinic appointment cancellation code
- clinic appointment booking date or date request received

**Possible data sources:**

- clinic appointment information system/appointment books
- appointment request or referral documentation, for example, letter, fax
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database

**Comments:**

- When a doctor's letter is received by fax, use the fax date rather than the date of the letter.
- The count of calendar days starts from the first day after the request for appointment is received.

**Indicator number: 2**

Indicator:	Percentage of patients having contact with a breast care nurse between being informed of a diagnosis of breast cancer and having definitive surgery
Indicator area:	Supportive care
Domain of quality:	Appropriateness and acceptability
<b>Indicator rationale:</b>	Specialist breast nurses 'enhance the early recognition of support needs, decrease psychological distress, and improve continuity of care and understanding of the disease and its treatment (Level II)' (National Health and Medical Research Centre, 2001 a).

**Numerator:** *The number of patients having contact with a breast care nurse between being informed of a diagnosis of breast cancer and undergoing definitive surgery, separated during the time period under study*

**Denominator:** *The total number of patients who have definitive surgery for breast cancer, separated during the time period under study*

**Definition of terms: The following terms have been defined for the purpose of monitoring this indicator:**

Contact	Face to face discussion prior to the day of surgery
Breast care nurse	A designated member of the nursing staff who undertakes particular tasks for patients diagnosed with breast disease (see glossary)
Informed of a diagnosis	The date on which the patient is made aware of the definitive diagnosis. For a positive diagnosis, this would be in person at the breast or general surgical clinic.
Breast cancer	Malignancy of the breast, including invasive cancer or ductal carcinoma in situ
Definitive surgery	The surgical procedure (for example, mastectomy, wide local excision) aimed at eradicating the primary tumour and any local extension
Separated	Released from hospital after admission for care

**Inclusions:** Male and female patients  
Contact with a breast care nurse immediately after being informed of a diagnosis of breast cancer

**Exclusions:** Patients whose first diagnosis is metastatic breast cancer  
Patients undergoing re-excision

**Useful data elements for monitoring this indicator:**

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50 malignant neoplasm of breast
  - ICD-10-AM D05 carcinoma in situ of breast

- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral

- pathology information, code or key word
- date patient informed of diagnosis or date of diagnosis
- date of contact with breast care nurse or clinic appointment date
- date of definitive surgery

**Possible data sources:**

- medical record information system
- pathology information system
- clinic appointment information system/appointment books
- theatre information system
- unit or ward database
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database
- breast care nurse records (appointment books, card systems, referral documents)

**Comments:**

- Consider including breast care nurse notes in the medical record.
- Introduce a stamp or sticker to identify breast care nurse documentation in the medical record.
- Face-to-face contact is considered to be best practice, however, it is acknowledged that contact with a breast care nurse will not always be face-to-face for a variety of reasons. For the purposes of this indicator, only patients who have face-to-face contact with a breast care nurse should be included in the numerator.

**Indicator number: 3**

Indicator:	Percentage of new patients who have one or more medical consultations between being informed of a definitive diagnosis of breast cancer and commencement of definitive treatment
Indicator area:	Management planning
Domain of quality:	Access, appropriateness and acceptability
<b>Indicator rationale:</b>	The recommended steps for informing a patient of a breast cancer diagnosis include arranging a further appointment to address any further questions or concerns (National Health and Medical Research Centre, 1999).

**Numerator:** *The number of new breast clinic patients having one or more medical consultations between being informed of a definitive diagnosis of breast cancer and commencement of definitive treatment during the time period under study*

**Denominator:** *The total number of new breast clinic patients commencing definitive treatment for breast cancer during the time period under study*

**Definition of terms: The following terms have been defined for the purpose of monitoring this indicator:**

New	Attending breast clinic for the first time or attending breast clinic for a new complaint (usually one to two years after the first attendance)
Breast clinic patients	Patients seen in a dedicated breast unit or other relevant clinic or patients with breast problems seen in a general surgical clinic
Medical consultation	A formal appointment with a consultant in a breast unit or other relevant clinic
Informed	The date on which the patient is made aware of the definitive diagnosis
Definitive diagnosis	The final diagnosis established after review of the results of diagnostic tests
Breast cancer	Malignancy of the breast, including invasive cancer or ductal carcinoma in situ
Commencement of definitive	The date the patient starts first line treatment which treatment might be surgery, systemic treatment or radiotherapy

**Inclusions:** Male and female patients

**Exclusions:** Pre-admission/Pre-anaesthetic clinic attendances

**Useful data elements for monitoring this indicator:**

- unit record number
- clinic appointment date
- clinic name and code
- clinic doctor name and code
- clinic appointment type

- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast
  - ICD-10-AM D05. Carcinoma in situ of breast
  - ICD-10-AM Z51.0 Radiotherapy session
  - ICD-10-AM Z51.1 Pharmacotherapy session for neoplasm
- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral
- pathology information, code or key word
- date informed of definitive diagnosis of breast cancer
- date treatment commenced

**Possible data sources:**

- clinic appointment information system/appointment books
- medical record information system
- pathology information system
- unit or ward database
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database

**Comments:**

- If definitive surgery aimed at eradicating the primary tumour and any local extension has been undertaken, definitive treatment would be considered to have commenced for the purposes of this indicator.

**Indicator number: 4**

Indicator:	Percentage of patients undergoing definitive surgery for breast cancer whose operative specimens have clear histological margins
Indicator area:	Definitive surgery
Domain of quality:	Safety and effectiveness
<b>Indicator rationale:</b>	'Completeness of excision minimises the risk of local recurrence' (National Health and Medical Research Centre, 2001a).

**Numerator:** *The number of patients undergoing definitive surgery for breast cancer whose final histopathology report related to the definitive surgery states clear margins and who are separated during the time period under study*

**Denominator:** *The total number of patients undergoing definitive surgery for breast cancer and separated during the time period under study*

**Definition of terms: The following terms have been defined for the purpose of monitoring this indicator:**

Definitive surgery	The surgical procedure (for example, mastectomy, wide local excision) aimed at eradicating the primary tumour and any local extension
Breast cancer	Malignancy of the breast, including invasive cancer or ductal carcinoma in situ
Histopathology report	Assessment of cellular features of excised tissue, prepared by a pathologist and available in printed or electronic format
States	Included in the final histopathology report generated by the pathologist for the excised lesion
Clear margins	Histological confirmation that the margins of the resected breast tissue do not show tumour involvement. [The Royal College of Pathologists of Australasia has endorsed the use of this definition for the purposes of this indicator. ]
Separated	Released from hospital after admission for care

**Inclusions:** Male and female patients

**Exclusions:** Patients with known chest wall involvement  
Patients with known skin involvement

**Useful data elements for monitoring this indicator:**

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast
  - ICD-10-AM D05 Carcinoma in situ of breast

- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral

- pathology information, code or key word

**Possible data sources:**

- medical record information system
- pathology information system
- histopathology reports
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database

**Comments:**

- The width of the margin is unspecified.
- Look for text in the pathology report, such as 'clear margins' or 'no tumour involvement at the margins'.
- A statement relating to the width of the margin, for example, 'margin of (x) mm' is acceptable.
- Consider collecting data items for indicators 4 and 5 simultaneously.
- Consider retrospective collection of data items.
- If clear margins have not been achieved by the end of the reporting period, then these patients will not be included in the numerator.

**Indicator number: 5**

Indicator:	Percentage of patients with complete histopathology reports following definitive surgery for invasive breast cancer
Indicator area:	Management planning
Domain of quality:	Appropriateness and efficiency
<b>Indicator rationale:</b>	The histopathology report is an intrinsic component of the information required in the overall management plan for each patient with breast cancer. Ensuring the report contains complete information is essential (Australian Cancer Network, 2001).

**Numerator:** *The number of patients undergoing definitive surgery for invasive breast cancer whose histopathology reports provide complete information and who are separated during the time period under study*

**Denominator:** *The total number of patients undergoing definitive surgery for invasive breast cancer and who are separated during the time period under study*

**Definition of terms: The following terms have been defined for the purpose of monitoring this indicator:**

**Definitive surgery** The surgical procedure (for example, mastectomy, wide local excision) aimed at eradicating the primary tumour and any local extension

**Invasive breast cancer** A primary malignant neoplasm invading surrounding tissue within the breast. Ductal carcinoma in situ alone is excluded.

**Histopathology report** Assessment of cellular features of excised tissue, prepared by a pathologist and available in printed or electronic format

**Complete information** Initial or subsequent histopathology reports with the following components:

1. lesion size
2. histological type
3. histological grade
4. lymph node involvement
5. margins of excision
6. lymphovascular invasion
7. changes in the adjacent breast tissue
8. hormone (oestrogen and progesterone) receptor status.

All of the above components must be addressed in the reporting process.

Partial compliance is not acceptable for this indicator.

[All microscopic reports of invasive breast cancer should contain information concerning all of items one to seven above (Australian Cancer Network, 2001). The Royal College of Pathologists of Australasia has endorsed the inclusion of item 8 for the purposes of this indicator (Royal College of Pathologists of Australasia, 2002).]

**Separated** Released from hospital after admission for care

**Inclusions:** Male and female patients

**Exclusions:** Re-excisions

Patients diagnosed with Ductal carcinoma in situ alone

**Useful data elements for monitoring this indicator:**

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast
- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral
- pathology information, code or key word

**Possible data sources:**

- medical record information system
- pathology information system
- histopathology reports
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database

**Comments:**

- The Pathology Reporting of Breast Cancer Guidelines under 'adjacent breast tissue' state that the presence of ductal carcinoma in situ atypical ductal or lobular hyperplasia and lobular carcinoma in situ in tissue adjacent to the invasive carcinoma should be stated. If the nipple is included in the specimen, the presence or absence of tumour involvement of the nipple should be stated (Australian Cancer Network, 2001).
- 'Adjacent' might be referred to as 'surrounding'.
- 'No abnormality' or 'Not applicable', where appropriate, should be reported.
- Consider collecting data for indicators 4 and 5 simultaneously.
- Consider retrospective data collection to ensure all items are available.
- If undertaking prospective data collection, allow an additional week after surgery for all components of the report to be available.

Ductal carcinoma in situ alone is excluded because the requirements for histopathology reporting vary from those for invasive breast cancer. It was agreed in the performance indicator development process that complete reporting for invasive cancer should be an indicator's area of initial focus.

**Indicator number: 6**

**Indicator:** Percentage of invasive breast cancer patients with evidence of a multidisciplinary team management discussion having taken place (as defined by an agreed local protocol; see comments below)

**Indicator area:** Management planning

**Domain of quality:** Appropriateness and efficiency

**Indicator rationale:** 'The outcome of patients with breast cancer is better if they are treated by a clinician who has access to the full range of treatment options in a multidisciplinary setting (Level III)' (National Health and Medical Research Centre, 2001a).

**Numerator:** *The number of patients having definitive treatment for invasive breast cancer and separated during the time period under study, with evidence that the case was discussed by a multidisciplinary team*

**Denominator:** *The total number of patients having definitive treatment for invasive breast cancer and separated during the time period under study*

**Definition of terms:** The following terms have been defined for the purpose of monitoring this indicator:

**Definitive treatment** First line treatment which might be surgery, systemic treatment or radiotherapy

**Invasive breast cancer** A primary malignant neoplasm invading surrounding tissue within the breast. Ductal carcinoma in situ alone is excluded.

**Separated** Released from hospital after admission for care

**Evidence** Documentation in the patient's medical record. This could include multidisciplinary team meeting notes, referral notes to other clinicians or notes regarding telephone discussions with other consultants.

**Multidisciplinary team** Three or more clinicians representing the main disciplines involved in the treatment of breast cancer plus a breast care nurse (see glossary)

**Inclusions:** Male and female patients

**Exclusions:** Patients diagnosed with ductal carcinoma in situ alone

**Useful data elements for monitoring this indicator:**

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50.Malignant neoplasm of breast
  - ICD-10-AM Z51.0 Radiotherapy session
  - ICD-10-AM Z51.1 Pharmacotherapy session for neoplasm

- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31515-00 [1744] Re-excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral

- pathology information, code or key word

**Possible data sources:**

- medical record information system
- pathology information system
- unit or ward database
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database
- meeting agendas and attendance rolls

**Comments:**

- Consider documenting a summary of the multidisciplinary team discussion in the medical record.
- It is expected that a standard for developing local protocols will be introduced.

**Indicator number: 7**

Indicator:	Percentage of patients whose general practitioners are sent management information within 14 calendar days of discharge following definitive surgery for breast cancer
Indicator area:	Management planning
Domain of quality:	Appropriateness, acceptability and continuity of care
<b>Indicator rationale:</b>	'The responsibility of the GP in the ongoing care of the whole patient is helped by the receipt of timely and comprehensive letters from specialists with adequate information about the management plan, including copies of pathology reports and other relevant investigations' (National Health and Medical Research Centre, 2001a).

**Numerator:** *The number of patients whose general practitioners are sent management information within 14 calendar days of discharge following definitive surgery for breast cancer, discharged during the time period under study*

**Denominator:** *Total number of patients undergoing definitive surgery for breast cancer, discharged during the time period under study*

**Definition of terms:** The following terms have been defined for the purpose of monitoring this indicator:

General practitioner	General practitioner nominated by the patient as the preferred local medical officer
Sent	Forwarded by fax, email, telephone or post
Management information	Information that ideally includes all the following items: <ol style="list-style-type: none"> <li>1. histopathology information (Tumour Nodes Metastases, grade, oestrogen and progesterone receptor status)</li> <li>2. type of surgery</li> <li>3. forms of planned adjuvant treatment if any</li> <li>4. next planned contact with the patient</li> <li>5. wound management, which requires possible follow-up by general practitioner</li> <li>6. psychosocial issues (referrals, concerns or issues)</li> <li>7. clinic or unit contact details</li> <li>8. whether patient informed of above information</li> </ol> <p>This information might be found in the discharge summary or other post-discharge correspondence.</p>
Within 14	Fourteen or less than fourteen
Calendar days	Days including weekends and public holidays
Discharge	Release from hospital after admission for care, excluding deaths
Definitive surgery	The surgical procedure (for example, mastectomy, wide local excision) aimed at eradicating the primary tumour and any local extension
Breast cancer	Malignancy of the breast, including invasive cancer or ductal carcinoma in situ
<b>Inclusions:</b>	Male and female patients
<b>Exclusions:</b>	Nil

**Useful data elements for monitoring this indicator:**

- unit record number
- date of discharge
- ICD-10-AM disease codes:
  - ICD-10-AM C50.- Malignant neoplasm of breast
  - ICD-10-AM D05.- Carcinoma in situ of breast
- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31515-00 [1744] Re-excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral
- pathology information, code or key word
- date general practitioner sent management information

**Possible data sources:**

- medical record information system
- pathology information system
- unit or ward database
- medical dictation and transcription service and system
- medical or client records
- discharge summary or other post-discharge correspondence
- data collection form
- information unit, quality unit or decision support unit database

**Comments:**

- Each episode of care in a multi-stage procedure warrants sending management information to the patient's general practitioner.
- The count of calendar days starts from the first day after discharge.
- All eight items listed in the definition of management information are required to be included in the numerator for this indicator.
- If the contact with the general practitioner is by telephone, there must be documented evidence in the medical record that this telephone call did take place and that all the components of the management information were discussed.
- Patients who do not have a nominated general practitioner should still be included in the denominator.

**Indicator number: 8.1**

Indicator:	Percentage of patients having definitive surgery for invasive breast cancer with defined indications for radiotherapy who are referred to a radiation oncologist
Indicator area:	Adjuvant treatment
Domain of quality:	Appropriateness and continuity of care
<b>Indicator rationale:</b>	‘Radiotherapy after complete local excision (CLE) is recommended as it significantly reduces the risk of local recurrence in the breast and the need for further surgery.’  ‘Postmastectomy radiotherapy is recommended for women at high risk of local or regional relapse.’ (Level I) (National Health and Medical Research Centre, 2001a).

<b>Numerator:</b>	<i>The number of patients having definitive surgery for invasive breast cancer, separated during the time period under study, who are referred to a radiation oncologist for defined indications for radiotherapy</i>
<b>Denominator:</b>	<i>The total number of patients having definitive surgery for invasive breast cancer, separated during the time period under study, who have defined indications for radiotherapy</i>

**Definition of terms: The following terms have been defined for the purpose of monitoring this indicator:**

Definitive surgery	The surgical procedure (for example, mastectomy, wide local excision) aimed at eradicating the primary tumour and any local extension
Invasive breast cancer	A primary malignant neoplasm invading surrounding tissue within the breast. Ductal carcinoma in situ alone is excluded.
Separated	Released from hospital after admission for care
Referred to a radiation oncologist	Documented evidence (electronic or hard copy) of a referral to a physician with special training in the use of ionizing radiation in the treatment of cancers
Defined indications for radiotherapy (National Health and Medical Research Centre, 2001a)	apply to patients who have: <ul style="list-style-type: none"> <li>- breast conserving surgery or</li> <li>- mastectomy + tumour size &gt;5.0 cm or</li> <li>- mastectomy + &gt; three axillary nodes involved or</li> <li>- mastectomy + positive tumour margins or</li> <li>- mastectomy + tumour size ≤ 5.0 cm + lymphovascular invasion or</li> <li>- mastectomy + tumour size ≤ 5.0 cm + tumour grade is high (grade 3) or</li> <li>- mastectomy + ≤ three axillary nodes involved + lymphovascular invasion or</li> <li>- mastectomy + ≤ three axillary nodes involved + tumour grade is high (grade 3).</li> </ul>

**Inclusions:** Male and female patients

**Exclusions:** Patients who refuse referral  
Patients diagnosed with ductal carcinoma in situ alone

**Useful data elements for monitoring this indicator:**

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50.Malignant neoplasm of breast
- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31515-00 [1744] Re-excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral
- pathology information, code or key word
- date of referral
- referral unit

**Possible data sources:**

- medical record information system
- unit or ward database
- referral documentation
- clinic appointment information system
- histopathology reports
- medical or client records
- information unit, quality unit or decision support unit database

**Comments:**

- Consider collecting data retrospectively.
- A related indicator that provides information about the timeliness of radiotherapy is included in the Australian Council on Healthcare Standards' Radiation Oncology Clinical Indicator Set. If your hospital reports on this indicator, performance in relation to radiotherapy waiting times can be sourced for breast cancer patients through this process.

**Indicator number: 8.2**

Indicator:	Percentage of invasive breast cancer patients with intermediate or high risk of recurrence who are referred to a medical oncologist
Indicator area:	Adjuvant treatment
Domain of quality:	Appropriateness
<b>Indicator rationale:</b>	Because systemic adjuvant therapies have been proved effective, they should be considered in the management of all patients with high or moderate risk of recurrence after local therapy for early breast cancer (National Health and Medical Research Centre, 2001a).

**Numerator:** *The number of patients having definitive surgery for invasive breast cancer, separated during the time period under study, who are referred to a medical oncologist for defined indications for medical oncology*

**Denominator:** *The total number of patients having definitive surgery for invasive breast cancer, separated during the time period under study, who have defined indications for medical oncology*

**Definition of terms:** The following terms have been defined for the purpose of monitoring this indicator:

Definitive surgery	The surgical procedure (for example, mastectomy, wide local excision) aimed at eradicating the primary tumour and any local extension
Invasive breast cancer	A primary malignant neoplasm invading surrounding tissue within the breast. Ductal carcinoma in situ alone is excluded.
Separated	Released from hospital after admission for care
Referred to a medical oncologist	Documented evidence (electronic or hard copy) of a referral to a physician with special training in the use of systemic adjuvant therapy in the treatment of cancers
Defined indications for medical oncology	Applies to patients who have intermediate or high risk of recurrence as defined in the following table:

Risk of recurrence	Nodal status	Tumour size	Grade	ER or PgR status	Age
<b>Intermediate*</b>	Node negative	1.1–2.0 cm in greatest dimension	Grade 1–2	Positive	
<b>High**</b>	Node negative	> 2.0 cm in greatest dimension	Grade 2–3	Both negative	< 35 yrs
	Node positive				

**Intermediate risk\*** = Node negative invasive breast cancer + **all** of the other factors

**High risk\*\*** = Node negative invasive breast cancer + **at least one** of the other factors **or** node positive invasive breast cancer (National Health and Medical Research Centre, 2001a).

**Inclusions:** Male and female patients

**Exclusions:** Patients diagnosed with ductal carcinoma in situ alone

**Useful data elements for monitoring this indicator:**

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast
- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31515-00 [1744] Re-excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral
- pathology information, code or key word
- date of birth
- date of referral

**Possible data sources:**

- medical record information system
- inpatient management system
- pathology information system
- unit or ward database
- medical or client records
- histopathology reports
- referral documentation
- information unit, quality unit or decision support unit database

**Comments:**

- Refer to medical oncology correspondence for information.

**Indicator number: 9**

Indicator:	Percentage of invasive breast cancer patients diagnosed with bone metastases receiving bisphosphonate treatment
Indicator area:	Management of recurrent and advanced disease
Domain of quality:	Appropriateness
<b>Indicator rationale:</b>	When given regularly to patients with advanced breast cancer and at least one bony metastasis, bisphosphonates enhance quality of life and reduce bone pain, the need for analgesics, the rate of development of new bony lesions, the incidence of hypercalcaemia and the need for radiotherapy to bony lesions (Level I) (National Health and Medical Research Centre, 2001b).

**Numerator:** *The number of invasive breast cancer patients diagnosed with bone metastases during the time period under study who receive bisphosphonate treatment*

**Denominator:** *The total number of invasive breast cancer patients diagnosed with bone metastases during the time period under study*

**Definition of terms:** The following terms have been defined for the purpose of monitoring this indicator:

**Invasive breast cancer** A primary malignant neoplasm invading surrounding tissue within the breast. Ductal carcinoma in situ alone is excluded.

**Diagnosed** Identification of disease

**Bone metastases** Any secondary or distant spread of the primary breast cancer identified at any bone site by imaging

**Bisphosphonate treatment** Receiving an oral course or an intravenous infusion of synthetic compounds characterised by a P-C-P group (see glossary)

**Inclusions:** Male and female patients.  
Patients receiving bisphosphonate treatment as an outpatient

**Exclusions:** Patients diagnosed with ductal carcinoma in situ alone

**Useful data elements for monitoring this indicator:**

- unit record number
- radiology information, code or key word
- pharmacy information, code or key word
- date of separation
- date of clinic appointment

- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast and ICD-10-AM C79.5 Secondary malignant neoplasm of bone and bone marrow
  - ICD-10-AM E83.5 – Disorders of calcium metabolism
  - ICD-10-AM Z51.1 – Pharmacotherapy session for neoplasm
- ICD-10-AM procedure codes:
  - ICD-10-AM 96199-00 [1920] Intravenous administration of pharmacological agent, antineoplastic agent

**Possible data sources:**

- radiology information system
- nuclear medicine information system
- medical record information system
- pharmacy information system
- clinic appointment system
- unit or ward database
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database

**Comments:**

- Consider establishing a register of patients who have invasive breast cancer and bone metastases.
- Cross-check pharmacy records.

## Critical events

### Indicator number: 10.1

Indicator:	The number of invasive breast cancer patients diagnosed with febrile neutropaenia following administration of chemotherapy, requiring admission to hospital for an overnight stay
Indicator area:	Adjuvant treatment
Domain of quality:	Safety and efficiency
<b>Indicator rationale:</b>	Patients receiving chemotherapy are at increased risk of serious infective complications (National Health and Medical Research Centre, 2001a).

**Number of events:** *The number of invasive breast cancer patients with febrile neutropaenia following administration of chemotherapy, requiring admission to hospital for an overnight stay, separated during the time period under study*

**Definition of terms:** The following terms have been defined for the purpose of monitoring this indicator:

Invasive breast cancer	A primary malignant neoplasm invading surrounding tissue within the breast. Ductal carcinoma in situ alone is excluded.
Febrile neutropaenia	A febrile illness associated with abnormal decrease in the number of neutrophil leucocytes in the blood. The decrease can be relative or absolute.
Chemotherapy	The use of cytotoxic drugs to destroy, prevent or slow the growth of cancer cells
Admission to hospital for an overnight stay	Process whereby the hospital accepts responsibility for the patient's care or treatment for a minimum of one night, including emergency admissions longer than 24 hours
Separated	Released from hospital after admission for care

**Inclusions:** Male and female patients  
Patients with metastatic disease

**Exclusions:** Patients with febrile neutropaenia who received chemotherapy at another hospital  
Patients diagnosed with ductal carcinoma in situ alone

### Useful data elements for monitoring this indicator:

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast
  - ICD-10-AM Z51.1 Pharmacotherapy session for neoplasm
  - ICD-10-AM D70 Agranulocytosis (neutropenia) and ICD-10-AM R50 Fever of unknown origin (pyrexia)
- date of admission

**Possible data sources:**

- medical record information system
- unit or ward database
- medical or client records
- information unit, quality unit or decision support unit database

**Comments:**

- Count only once any patient with multiple episodes of chemotherapy followed by febrile neutropaenia, during the time period under study.
- Use the most recent episode of chemotherapy when assigning the timeframe between chemotherapy and diagnosis of febrile neutropaenia.
- Collect retrospectively to allow all cases of febrile neutropaenia to be captured.
- In the pilot testing phase, 90 per cent of cases of febrile neutropenia occurred within 14 days of administration of chemotherapy. Allow sufficient time to capture cases in the period after therapy.

**Indicator number: 10.2**

Indicator:	The number of patients requiring an unplanned return to the operating room during an admission for breast cancer surgery for a problem related to that surgery
Indicator area:	Definitive surgery
Domain of quality:	Safety and efficiency
<b>Indicator rationale:</b>	In addition to increasing patient morbidity, an unplanned return to the operating room has implications for the quality of care provided (Ansari and Collopy, 1996).

**Number of events:** *The number of patients requiring an unplanned return to the operating room during the same admission for breast cancer surgery for a problem related to that surgery, separated during the time period under study*

**Definition of terms:** The following terms have been defined for the purpose of monitoring this indicator:

Unplanned return to the operating room	A return to the operating room for management of a complication which is related to the primary operation and not part of a planned or staged procedure
Same admission	Patient has not yet been discharged from hospital following the definitive breast surgery
Breast cancer surgery	Definitive surgical treatment of invasive breast cancer or ductal carcinoma in situ by either breast conserving surgery or mastectomy (see inclusions below)
Problem related to that surgery	Any complication diagnosed as being related to the breast cancer surgery. This would include significant haematoma, seroma, wound infections and tissue necrosis (following reconstruction)
Separated	Released from hospital after admission for care

**Inclusions:** Male and female patients  
Patients who go on to have immediate reconstruction during the same operative session

**Exclusions:** Patients undergoing surgery for benign conditions  
Day cases  
Planned re-excisions

**Useful data elements for monitoring this indicator:**

- unit record number
- date of separation
- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast
  - ICD-10-AM D05 Carcinoma in situ of breast
  - ICD-10-AM disease codes indicating complication of surgery

- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31515-00 [1744] Re-excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral

- pathology information, code or key word
- procedure date

**Possible data sources:**

- medical record information system
- pathology information system
- theatre information system
- unit or ward database
- medical or client records
- information unit, quality unit or decision support unit database

**Comments:**

- An indicator that provides this information is included in the Australian Council on Healthcare Standards' Hospital Wide Indicator Set. If your hospital reports on this indicator, this information can be sourced for breast cancer patients through this process.

**Indicator number: 10.3**

Indicator:	The number of patients who have an unplanned readmission to hospital within 28 days of discharge following breast cancer surgery, with a complication related to that surgery
Indicator area:	Definitive surgery
Domain of quality:	Safety and efficiency
<b>Indicator rationale:</b>	Complications of a surgical procedure for breast cancer requiring an unplanned readmission to hospital within 28 days of discharge might indicate less than optimal care. A low rate of unplanned readmissions is clearly desirable (Health Services Outcomes Branch, Department of Health and family Services, 1998).

**Number of events:** *The number of patients who have an unplanned readmission to hospital within 28 days of discharge following breast cancer surgery, with a complication related to that surgery, discharged during the time period under study*

**Definition of terms:** The following terms have been defined for the purpose of monitoring this indicator:

Unplanned readmission	Readmission which is not planned or expected
Within 28 days of discharge	28 days or less since date of live separation
Breast cancer surgery	Definitive surgical treatment of invasive breast cancer or ductal carcinoma in situ by either breast conserving surgery or mastectomy (see inclusions below)
Complication related to that surgery	Any complication diagnosed as being related to breast cancer surgery. This would include significant haematoma, seroma, wound infection, deep vein thrombosis, tissue necrosis (following reconstruction), delayed healing, rejection of the prosthesis, abdominal wall weakness following rectus flap reconstruction
Discharged	Released from hospital after admission for care, excluding deaths

**Inclusions:** Male and female patients  
Patients who go on to have immediate reconstruction during the same operative session

**Exclusions:** Patients having delayed reconstruction of the breast following breast cancer surgery  
Planned re-excisions

**Useful data elements for monitoring this indicator:**

- unit record number
- date of discharge
- ICD-10-AM disease codes:
  - ICD-10-AM C50 Malignant neoplasm of breast
  - ICD-10-AM D05 Carcinoma in situ of breast
  - ICD-10-AM disease codes indicating complication of surgery

- ICD-10-AM procedure codes:
  - ICD-10-AM 31500-00 [1744] Excision of lesion of breast
  - ICD-10-AM 31515-00 [1744] Re-excision of lesion of breast
  - ICD-10-AM 31524-00 [1747] Subcutaneous mastectomy, unilateral
  - ICD-10-AM 31524-01 [1747] Subcutaneous mastectomy, bilateral
  - ICD-10-AM 31518-00 [1748] Simple mastectomy, unilateral
  - ICD-10-AM 31518-01 [1748] Simple mastectomy, bilateral

- pathology information, code or key word
- date of admission

**Possible data sources:**

- medical record information system
- pathology information system
- theatre information system
- inpatient management information system
- unit or ward database
- medical or client records
- data collection form
- information unit, quality unit or decision support unit database

**Comments:**

- Consider collecting data retrospectively.
- The count of calendar days starts from the first day after discharge following breast cancer surgery.
- An indicator that provides this information is included in the Australian Council on Healthcare Standards' Hospital Wide Indicator Set. If your hospital reports on this indicator, this information can be sourced for breast cancer patients through this process.

## Glossary of terms used in data dictionary

Advanced breast cancer	The disease, when it has advanced beyond the stage of being confined to the breast tissue alone or to the breast tissue plus armpit (axillary) lymph nodes
Agreed local protocol	If this indicator is implemented in the longer term, an agreed local protocol will be required which details processes for multidisciplinary care in each hospital. It is expected that a standard for developing local protocols will be introduced.
Bisphosphonate	Analogues of inorganic pyrophosphate used in medicine mainly to inhibit bone resorption in tumour bone disease
Breast care nurse	<p>A designated member of the nursing staff who undertakes the following tasks for patients diagnosed with breast disease:</p> <ul style="list-style-type: none"> <li>• provides and clarifies information about psychosocial, physical, treatment, practical, cultural and communication issues</li> <li>• provides clinical information about issues such as wound care and complication prevention</li> <li>• refers to supportive counselling when needed, including for family, sexuality and grief issues</li> <li>• liaises with and refers women to other health professionals</li> <li>• ensures women with significant psychological problems are recognised early and referred to appropriate health care professionals.</li> </ul> <p>The designated person in this role would normally or ideally have undertaken specialist training in cancer nursing and have experience in the care of women with breast cancer.</p>
DCIS	Ductal carcinoma in situ
Levels of evidence ratings	<p>A four-level rating system to identify the strength of the evidence base for key decision points. This rating system is recommended by the National Health and Medical Research Centre Quality of Care and Health Outcomes Committee and has been adapted from the system developed by the United States' Preventive Service Task Force. The system is as follows:</p> <p><b>Level I</b> Evidence is obtained from a systematic review of all relevant randomised controlled trials.</p> <p><b>Level II</b> Evidence is obtained from at least one properly designed randomised controlled trial.</p> <p><b>Level III</b> Evidence is obtained from well designed controlled trials without randomisation or from well designed cohort or case control analytic studies, preferably from more than one centre or research group or from multiple time series with or without the intervention.</p> <p><b>Level IV</b> This represents the opinions of respected authorities based on clinical experience, descriptive studies or reports of expert committees.</p>
Multidisciplinary team	Includes surgeon, medical oncologist, radiation oncologist and breast care nurse. Membership can also include, but is not limited to, pathologist, radiologist, physiotherapist or social worker



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