Annual Report 2017

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From the Chair, BreastSurgANZ Quality Audit

On behalf of the BreastSurgANZ Quality Audit (BQA) Subcommittee, it gives me great pleasure to introduce the inaugural Annual Report for the Audit.

This 2017 BreastSurgANZ Quality Audit Annual Report provides the most up-to-date overview of the surgical management of breast cancer across Australia and New Zealand. It reflects the status of current practice and demonstrates trends in management.

Since 2008, the auditing of surgeons performing breast cancer surgery has provided valuable feedback for individual surgeons and a rich vein of pooled data for research. Under the auspices of the Breast Surgeons of Australia and New Zealand Inc., audit activity has been directed to facilitating the quality assurance of its members and to drive improvements in treatment.

This Annual Report is an opportunity to reflect on what we have achieved but more importantly, it has been a self-assessment activity for the BQA. We can conclude that the BQA should not be a static data repository, rather there is a need to continually review the relevance of what data is collected and the benchmarks applied.

Our Audit should be evidenced-based and rigorously reviewed in the context of modern practice. Benchmarks may need to be replaced. New biomarkers and treatments may need to be added. Where thresholds have not been met, it is necessary to explore the reasons why. This process is already underway.

Key Performance Indicators (KPIs) were introduced and have become a fundamental component in the audit's ability to monitor and promote quality. Work is currently underway to close the audit loop through implementing an outliers policy. A delicate balance needs to be found between the need to protect the privacy of individual surgeons, the Society's need to promote their members as Quality Assured and the welfare of the wider community. Although it presents challenges, rolling out this "Practice Enhancement Process" remains a key goal.

A great deal can be learnt from 200,000 cases of breast cancer. Research output from the BQA continues to be encouraged. Improving the completeness of coverage is ongoing work but this report reveals that our members manage an increasingly significant majority of breast cancer cases. As the database expands and coverage increases, the BQA will become an even more globally relevant research tool.

During the evolution of the audit, there has been a constant struggle to achieve sustainability. Sporadic grant funding has enabled enhancements to the appearance and functionality of the portal interface. In addition, new data fields have been added including indigenous status, use of multidisciplinary team meetings and involvement of Breast Care Nurses.

However, after many years of austerity, the success of our Society and the support of all members is now producing the financial dividends that will fund incremental improvements. Potential areas of future development include the introduction of an Oncoplastic module, Patient Reported Outcomes Measures, as well as data linkage projects.

The BQA's focus remains on supporting our members practice and improving their interactions with the audit. With this in mind, we also seek to explore collaborations with other like-minded stakeholders to enhance our local knowledge of breast cancer through taking a role in a Clinical Quality Registry.

It is a credit to the dedication of surgeons, researchers, administrators and patients that the BQA continues to thrive. Special thanks must go to my predecessors. Peter Malycha was pivotal in nurturing the embryonic stages. Jim Kollias followed and promoted a research ethic within the audit that continues today. Through this transition, the BQA has been fortunate to have had the exemplary administrative and statistical support of the RACS Adelaide office.

On a final note, this report represents nearly 20 years of progress for the Audit. I trust it highlights the maturity of a Society that is proud of our achievements and comfortable with a transparent, rigorous pursuit of quality outcomes for our patients.

DAVID WALTERS

Mr David Walters FRACS
Chair, BQA Subcommittee

From the President, BreastSurgANZ

On behalf of all BreastSurgANZ members, I would like to thank the BQA team for producing the inaugural BQA Annual Report. Ultimately the report gives relevance to the longstanding Breast Quality Audit, now in its 21st year of operations, and importantly to its future direction. The success of the audit process could not be performed without the dedication and commitment of key people in the Audit team and the Surgical leaders through the years, including Committee Chairs Dr Peter Malycha , Dr Jim Kollias, and current Chair, Dr David Walters.

The primary goal of the Audit is to capture 100% of patient data from early breast cancer surgery performed by our members throughout Australia and New Zealand – to ensure continuous improvement of the quality assurance program for our surgeons, and fundamentally to facilitate ongoing improvements in quality outcomes for breast cancer patients.

We are working with the Audit team and our membership to improve data capture and compliance. I would like to reiterate that the Audit is a way of assessing patient outcomes, and we encourage and expect our breast surgeons to submit all their cases for quality assurance. The Audit provides an opportunity for the Society to ensure its members meet certain quality standards. With this goal in mind, we will continue to work with our membership for improvements and compliance with standards and assessment of high key performance indicators.

I am excited by potential future developments to enhance the Audit, including the development of an Oncoplastic module and patient related outcome data.

We would like to hear your feedback regarding the Audit Report and anything you feel we as an organisation can do better on this important activity of the Society.

SANJAY WARRIER

Associate Prof Sanjay Warrier
President, BreastSurgANZ

ACKNOWLEDGEMENTS

The BreastSurgANZ Quality Audit (BQA) is funded and directed by the Breast Surgeons of Australia and New Zealand (BreastSurgANZ) and operated by the Royal Australasian College of Surgeons (RACS) under contract.

This report was prepared by the RACS audit team in collaboration with the BreastSurgANZ Quality Audit Steering Committee:

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Dr Saud Hamza - Western Australia

Mr Ian Campbell - New Zealand

Mr David Moss - New Zealand

Ms Maryanne Maher - BCNA Consumer Representative

BreastSurgANZ membership

BreastSurgANZ acknowledges the dedication and enthusiasm of their members in maintaining involvement with the audit, providing time and resources to ensure the audit is an accurate and up-to-date reflection of practice in Australia and New Zealand.

The BreastSurgANZ aims to make the audit relevant to the needs of all members, and to ensure the audit reflects current practice. As always, feedback is very welcome from the membership on their experiences with the audit, and how BSANZ and RACS may better serve their requirements.

1. EXECUTIVE SUMMARY

The BreastSurgANZ Quality Audit (BQA) is a clinical quality assurance activity that has been operating since 1998. It was developed with the aim of monitoring and improving the standard of care provided by surgeons to patients with early breast cancer in Australia and New Zealand.

This report provides an overview of the activities of the audit in the 2017 calendar year. The principal activities were:

Data submitted

- 15,122 episodes of breast cancer were submitted.
- At end of 2017 there was a total of 202,808 episodes in the audit database, and 327 active accounts for surgeons.
- 17% of audit participants did not have their 2017 cases submitted at the time data was extracted for this report (December 2018). The cut-off for 2017 data entry is end April 2018.

New features

- Accounts for data managers were offered for the first time.
- High Quality Performance Indicators (HQPIs) were introduced. These are additional indicators for measuring quality care.

Dataset

- To implement the HQPIs, two new data fields were added to the Minimum Dataset to record the involvement of a Breast Care Nurse, and discussion of the patient with a multidisciplinary team.
- The 'neoadjuvant therapy' and 'patient refusal of treatment' questions were amended to improve data quality.

Outputs

- The audit produced two reports for the Ministry of Health BreastScreen Aotearoa program: New Zealand episodes diagnosed in 2014 and New Zealand episodes diagnosed in 2015.

Breast cancer standards

- Overall, surgeons are not meeting KPI6: high-risk cases referred for chemotherapy. It has been determined that this KPI needs to be amended to factor in neoadjuvant chemotherapy, which will see improved results.

2. RECOMMENDATIONS

From observing the 2017 data, the following recommendations are made with the intention of improving data coverage and the utility of the audit.

- Processes need to be improved to ensure 100% audit compliance related to case completeness, participation compliance and recency of data.
- KPI6 - high risk cases undergoing mastectomy being referred for radiotherapy to be amended to consider practice change (this has already been approved by the BQA Subcommittee to be implemented in 2019).

3. AUDIT ESTABLISHMENT

This section outlines a brief history of the audit, to provide background and context.

3.1. Rationale

In 1995, the House of Representatives Standing Committee on Community Affairs recommended that the RACS establish a compulsory form of accreditation and audit process for surgeons performing breast cancer surgery. The audit was conceived in response to this recommendation.

3.2. The National Breast Cancer Audit

The audit began in 1998 as a one-year pilot in South Australia and Tasmania. It was instigated by RACS through its Breast Section and in collaboration with the National Breast Cancer Centre (now Cancer Australia). The pilot was successful so in 1999, the National Breast Cancer Audit (as it was originally named) was implemented throughout Australia and New Zealand.

The audit's original purpose was to provide a benchmarking tool for the RACS Breast Section members to self-audit their practice against key performance indicators. Initially however, the data only allowed surgeons to compare their own practice profile with the aggregated profile of their Australasian peers.

3.3. Key Performance Indicators

In 2003, the audit developed Key Performance Indicators (KPIs) based on published best practice standards and set quality threshold values (see Section 4.6 for more details on the current indicators).

Originally launched as a stand-alone database where participants sent in their data to be entered by audit staff, the audit went online in 2004, which provided for participants to enter their data directly into the data portal.

3.4. The BreastSurgANZ Quality Audit

In 2010, the Breast Surgeons of Australia and New Zealand (BreastSurgANZ) was established, as a specialty society for surgeons treating breast cancer. One of the key purposes of the society was to provide quality assurance of its members through the audit. As of late 2010, the society assumed ownership of the audit. The audit was subsequently renamed BreastSurgANZ Quality Audit in 2014.

The current role of the audit continues to be the ability for participants to self-audit their practice through review of their performance against the KPIs. The BQA Online Portal includes real-time online assessment against the KPIs.

Steps have been made towards establishing a full Clinical Audit Cycle that includes assessing for outliers, i.e. those who do not meet the quality thresholds.

4. AUDIT PROCESS

This section describes how the audit operates.

4.1. Audit operation

The audit is operated by RACS under contract with the Breast Surgeons of Australia and New Zealand ("BreastSurgANZ"). Staff employed by RACS operate the audit under direction from BreastSurgANZ. The BreastSurgANZ Quality Audit Subcommittee acts as an advisory Committee which recommends and reports to the BreastSurgANZ Council.

4.2. Patient enrolment

Patients who meet the eligibility criteria are enrolled by the surgeon responsible for their care (see Section 4.3 below) and data entered as close to the point of care as feasible.

The audit collects patient treatment data under Opt-Out Consent. A patient information form is available from the audit website at www.surgeons.org/bqa so participants can provide to their patients.

4.3. Data collected

Data is recorded against the audit account of the Responsible Surgeon, defined as the surgeon responsible for the patient's care pathway (and hence able to influence whether the KPIs are met). In the event the surgery is performed wholly or entirely by another surgeon (for instance a surgical trainee is the Primary Surgeon in theatre), the audit record remains under the name of the surgeon ultimately responsible for their care (the Responsible Surgeon).

The audit has an account for each BreastSurgANZ member. Each surgeon is given their own individual surgeon accounts and data is recorded against this account, rather than at the patient level (i.e. the audit reports on how an individual surgeon treats their patients, rather than how an individual patient is treated across multiple surgeons). Each surgeon can only see their own data.

Each patient who meets the eligibility criteria has a single record under the surgeon's account. The audit can record multiple surgeries per episode (bilateral lesions) and multiple episodes (recurrences) per patient.

The BQA collects data on early and locally advanced breast cancer. It uses the definition of early breast cancer as stated in the NHMRC *Clinical Practice Guidelines for the Management of Early Breast Cancer:* tumours of not more than 5 cm in diameter with either impalpable or palpable but not fixed lymph nodes and with no evidence of distant metastases. This definition corresponds to tumours that are T 1-2, N 0-1, and M0 as currently defined by the International Union against Cancer (UICC).

Data is collected on patient demographics, cancer diagnosis, tumour pathology, surgical procedure, adjuvant and neoadjuvant therapies, and patient refusal of recommended treatment.

4.4. Datasets

Audit participants must complete the Minimum Dataset, which includes all datapoints necessary for threshold calculations on Key Performance Indicators. Optionally, all or some of the fields in the Full Dataset may be completed. This dataset contains more detailed datapoints, including Follow-up. The optional fields are completed at the discretion of the surgeon. See Appendix 1 for copies of each dataset.

A Data Dictionary is published on the audit website. It was originally created to conform to recommendations made by the National Breast Cancer Centre (now Cancer Australia), the College of Pathologists and Department of Health for minimum data requirements in breast cancer and has been updated over time as changes to the dataset are made.

4.5. Data submission

Data submission to the BQA is a requirement of membership in BreastSurgANZ. Participants are expected to have all cases submitted by April 30 of the year following diagnosis. Full Members of BreastSurgANZ are required to submit at least 10 cases of breast cancer per year to qualify for that membership category.

Data should be entered as close to the delivery of care as is feasible. The Minimum Dataset records the pathway from diagnosis to adjuvant therapy.

Data is submitted either via the online portal directly by participants, or via the upload program. The upload program allows institutions (i.e. registries, hospitals, audits) with a large case volume and sufficient commonality of fields to have their data uploaded into the system, rather than having to re-enter data manually.

While all data must be submitted by the end of April for cases diagnosed in the previous calendar year, there is typically a time lag for data submitted via the upload program due to the additional steps needed to extract, transform and upload the data, and the need to work with the timelines other hospitals and audits have for the finalisation of their cases.

Participants can log into the online portal to:

- Enter data
- View or add to existing data already entered
- Check their compliance with the Key Performance Indicators (see Section 4.6)
- Check their compliance with the High Quality Performance Indicators (see Section 5.3)
- Check how many episodes they have entered
- Export their data as an Excel file
- See a list of their incomplete cases, and export these cases into Excel
- Select which hospitals they operate at, which will appear in their ‘hospital’ drop-down list in the case entry form.

Data manager access was introduced in 2017. A data manager account can be created where there is signed permission from the surgeon concerned. This allows the data manager to access and enter records for the surgeon at the hospitals indicated on the signed data manager access application form (available from the audit website). Their access:

- Allows data entry, editing, as well as an ability to see a list of incomplete cases and export those cases to Excel.
- Provides a table summarising total annual episodes for each surgeon they enter data for (total episodes against each hospital the data manager has access to for that surgeon, not total entered by the data manager).
- Does not allow access to surgeon performance against the KPIs or HQPIs. This report is only available to the surgeon concerned, under their own login.
- Does not allow export of all data for a surgeon (only incomplete cases to check data entry).

Use of the database and the self-audit facility in the data portal is also available to non-member surgeons at a fee-per-case basis. This allows for wider data collection in the audit without providing the full range of member benefits to non-members (namely, they will be excluded from any quality assurance performance outliers process conducted by BreastSurgANZ).

4.6. Assessment

Participants can self-assess against six Key Performance Indicators (KPI), with quality thresholds set by the BQA Subcommittee. These indicators and thresholds have been produced according to evidence-based guidelines for care of early breast cancer patients, as well as expert advice.

The National Health and Medical Research Council (NHMRC) *Clinical Management Guidelines* were used as a basis to develop the original KPIs in 2003. The KPIs are also in line with recommendations in the New Zealand Guidelines Group *Management of Early Breast Cancer: Evidence-based Best Practice Guideline* which was released in 2009.

The current KPIs are:

No.	Key Performance Indicator	Quality threshold
1	Percentage of invasive cases undergoing breast conserving surgery referred for radiotherapy	85%
2	Percentage of oestrogen positive invasive cases referred for hormonal therapy	85%
3	Percentage of invasive cases undergoing axillary surgery	90%
4	Percentage of in situ cases undergoing breast surgery without axillary clearance	90%
5	Percentage of high-risk invasive cases undergoing mastectomy referred for radiotherapy	85%
6	Percentage of high-risk cases referred for chemotherapy	90%

In the KPIs, 'high risk' is defined as:

KPI 5: Invasive tumours of at least 50mm or with at least 4 positive lymph nodes.

KPI 6: Invasive tumours that fall into any of the following categories:

- Age less than 55 years AND Grade more than 1 AND Tumour size more than 2cm
- Age less than 55 years AND Grade more than 1 AND Tumour size not more than 2cm AND Nodes involved
- Age not more than 70 years AND Tumour Her2 Positive AND Tumour size more than 5mm
- Age not more than 70 years AND Receptors Triple Negative AND Tumour size more than 5mm.

The online portal provides real-time calculations of surgeon performance against the indicators. For more detailed analysis of data, participants can export their data to Excel, or can contact the audit helpdesk for assistance.

4.7. Data protection and privacy

The data collected for the BQA is protected under federal law in both Australia and New Zealand as a declared quality assurance activity. This means that data which becomes available because of the audit activity cannot be disclosed (in reports or publications) outside of that activity in a manner that identifies a patient or surgeon. The confidentiality of the information received is protected accordingly and high-level data security procedures are maintained.

The audit works under opt-out consent for patients. All patients need to be informed of the audit prior to having their data entered, giving them the opportunity to opt-out of having their medical information recorded. A patient information sheet is available from the audit website; it outlines everything a patient will need to know to make an informed choice. This sheet should be provided to patients before any data is submitted to the audit.

If a patient wishes to opt-out, they can advise their surgeon, or send the form to the audit staff. Since opt-out consent was introduced in 2017, of the 193,951 patient records in the database at the end of 2017, a total of 14 (less than 1%) have chosen to opt-out; two of which were in 2017.

4.8. Data Requests and Research

The BQA Data Request process allows participants and external researchers to request data or analyses from the audit, within the constraints of the 'declared quality assurance activity' legislation protections (see Section 4.7). This can either be custom extractions of a participant's own data, that of a hospital unit (with permissions from all surgeons), or for a de-identified subset of the database (once approved by the BQA Data Request Subcommittee). The BQA received 10 requests in 2017.

The data is available for quality assurance, planning, and research purposes. All requests for data are reviewed by the BQA Data Request Subcommittee. The audit webpage provides the data release policy, application form, and information about completed research projects and articles published.

BQA data is also used by BreastSurgANZ for research into trends in the diagnosis and management of early breast cancer in Australia and New Zealand. This research has resulted in a number of publications in internationally recognised journals.

The audit has engaged in a number of successful collaborations with prominent Australian and New Zealand organisations such as Cancer Australia, BreastScreen Aotearoa, Breast Cancer Network Australia and the Australian Commission on Safety and Quality in Health Care.

A list of these publications and details of the collaborations is available from the audit website.

4.9. BreastScreen Aotearoa Annual Reports

The BQA has provided the New Zealand Ministry of Health with annual reports on breast cancer patients treated in New Zealand since 2010. These reports examine tumour characteristics and treatment of patients referred from BreastScreen Aotearoa compared with referrals via other means.

In 2017, the audit produced two reports under this agreement: New Zealand episodes diagnosed in 2014 and New Zealand episodes diagnosed in 2015.

These reports are publicly available from the BQA webpage.

5. AUDIT ACTIVITIES IN 2017

5.1. Participation

A total of 15,122 episodes of breast cancer were submitted to the BQA in 2017; 13,309 episodes (88%) through the online portal, and 1813 episodes (12%) via the upload program. Figure 1 shows that of the data submitted, 11,241 episodes had diagnosis dates in 2017.

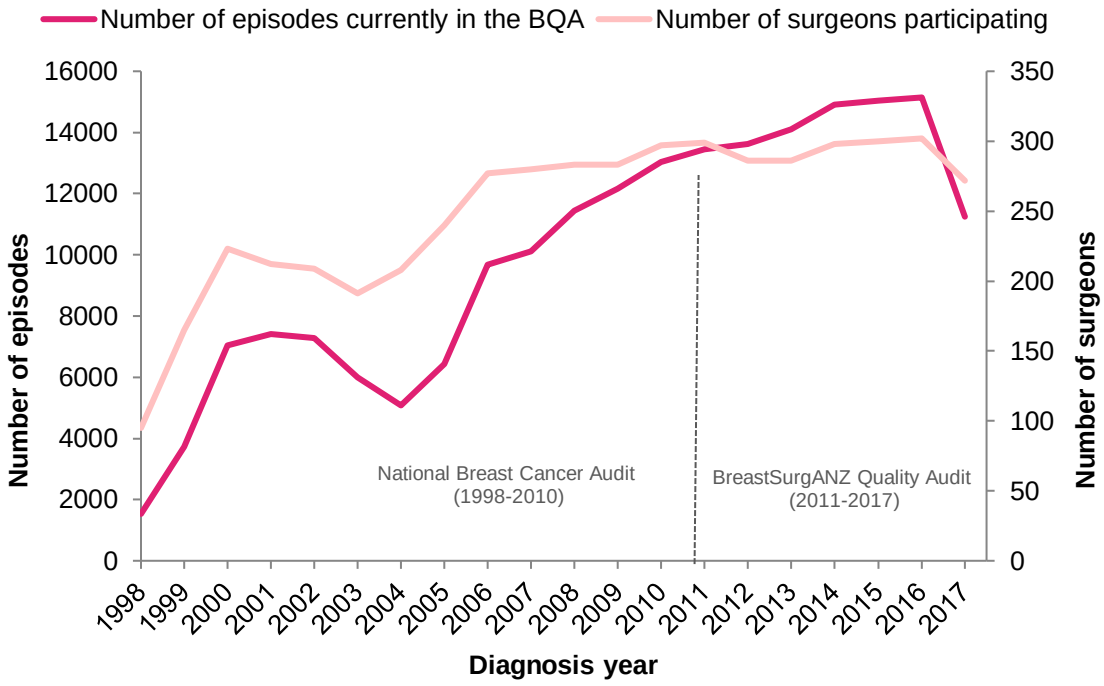
At year end, there were 327 active accounts for surgeons and a total of 202,808 episodes.

In 2017, accounts for data managers were offered for the first time. This feature allows surgeons to delegate their data entry to another individual. This feature proved immediately popular, and by the end of 2017, 25 data manager accounts were active.

Data was contributed by 244 hospitals, from New Zealand and all states and territories in Australia (see Appendix 2).

Figure 1 shows the amount of data submitted over the course of the audit. The lower number of episodes in the database for 2017 indicates a lag in data submission. At the time of reporting, 83% (272 participants out of a total of 327) of participants have submitted their cases for 2017.

Figure 1: Annual BQA data submission (by diagnosis date)



Note: Data provided in Appendix 3: Table 1.

5.2. Milestone reached: 200,000 episodes of breast cancer

The BQA database reached 200,000 episodes of breast cancer on Wednesday 6 December 2017.

5.3. High Quality Performance Indicators

In 2017, a set of High Quality Performance Indicators (HQPIs) were introduced. These are additional indicators for measuring quality care and they work similarly to the existing Key Performance Indicators. They will form part of the quality assurance that BreastSurgANZ offers to its members but initially will not form part of the outliers process being developed.

The HQPIs are planned to be in pilot for 12 months. A review of data collected will occur at the end of 2018, with a view to having the BQA Subcommittee set thresholds for surgeons in 2019.

In the meantime, surgeons can view their practice value against the HQPIs through the BQA online portal, with figures updated in real-time as data is added by the surgeon, data manager or through the upload program.

The six HQPIs are:

No.	High Quality Performance Indicator
1	Rate of immediate breast reconstruction for in situ breast cancer patients requiring mastectomy
2	Rate of immediate breast reconstruction for invasive breast cancer patients requiring mastectomy
3	Rate of breast conservation for tumour< 2cm
4	Rate of involvement of a breast case nurse in management of the patient
5	Rate of discussion of patients at a multidisciplinary meeting
6	Rate of use of neo-adjuvant chemotherapy in women < 50 years

To implement the above HQPIs, the following changes were also made to the BQA:

- Two new data fields were added to the Minimum Dataset, to collect data on the involvement of a Breast Care Nurse and discussion of the patient with a multidisciplinary team.

- The neoadjuvant therapy questions were altered to improve data quality, allowing a Yes or No to be recorded (previously a “yes” response could be selected and leaving the field blank was recorded as “no”), and the fields are now required for completeness of invasive cases. A field for neoadjuvant Herceptin was also added.

- Patient refusal of treatment was altered to be a multiple option response, and reconstruction was added as an option.

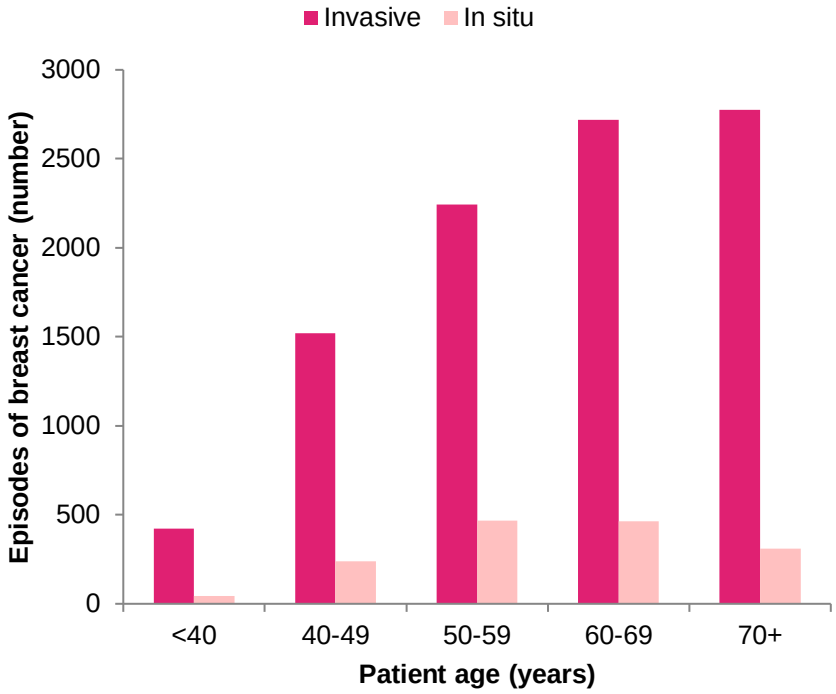
- Diagnosis date was moved to the first tab of the Full Dataset view, to avoid cases saved missing this mandatory field.

6. SUMMARY OF 2017 DATA

The BQA contains 11,241 records for episodes of early breast cancer diagnosed in 2017. The following pages show descriptive analysis of this data.

6.1. Patient characteristics

Figure 2: Patient age distribution of episodes diagnosed in 2017



Note: Excludes 42 episodes with missing information on invasive/in situ. Data provided in Appendix 3: Table 2.

The incidence of patients with invasive cancer diagnosed in 2017 increased with patient age. A total of 57% of invasive episodes diagnosed in 2017 were for patients 60 or older. The incidence of in situ peaked in the age bracket 50 to 69 years. A total of 61% of in situ episodes diagnosed in 2017 were for patients between 50 and 69 years.

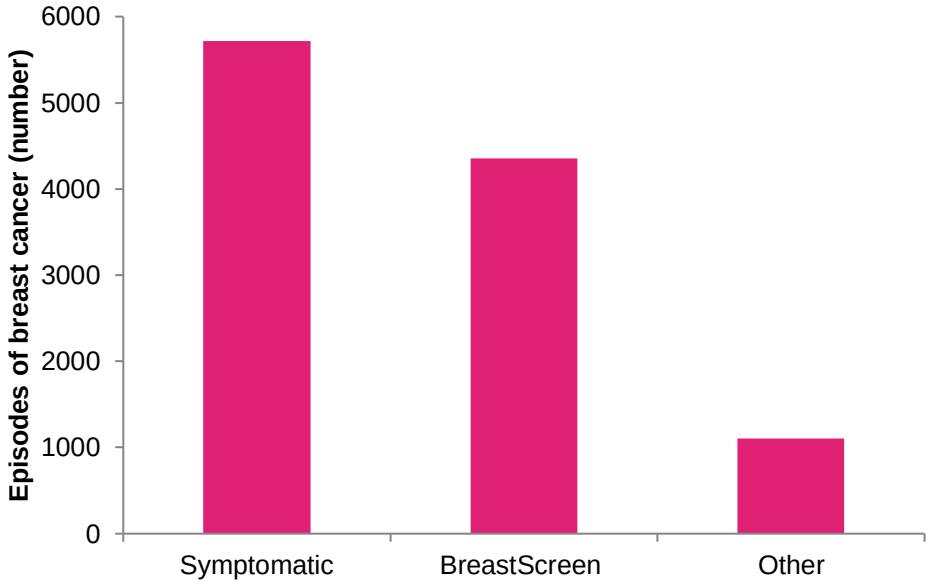
Male breast cancer was rare; only 1% of all breast cancer episodes diagnosed in 2017 (data not shown).

Figure 3: Treatment location of episodes diagnosed in 2017

Note: Excludes 19 episodes where treatment location is missing. Data provided in Appendix 3: Table 3.

The submission of data from each region reflects the population of cancer episodes treated in these locations. The largest submission of episodes was from New South Wales (26% of episodes), with the smallest submission from the Northern Territory (1% of episodes).

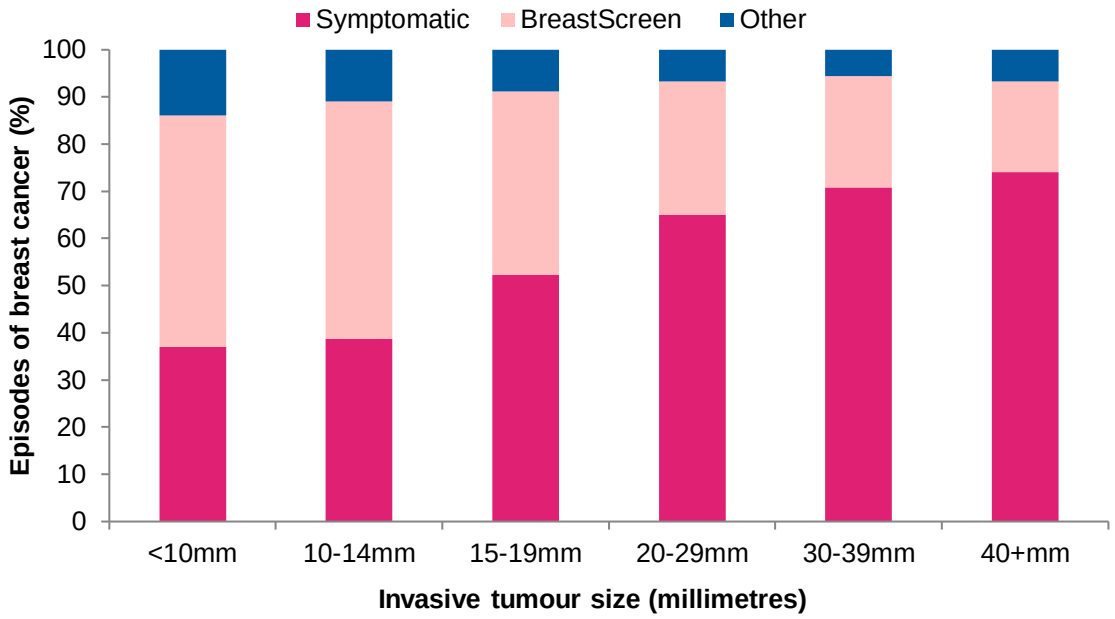
Figure 4: Referral source of episodes diagnosed in 2017



Note: Excludes 69 episodes where referral source is missing. Patients referred from Other sources may include private screening programmes. Data provided in Appendix 3: Table 4.

Half of the cancers diagnosed in 2017 were referred as symptomatic from a GP (51%). A further 39% were referred from BreastScreen programs in Australia or New Zealand. The remaining 10% were referred from other sources, such as private screening programs.

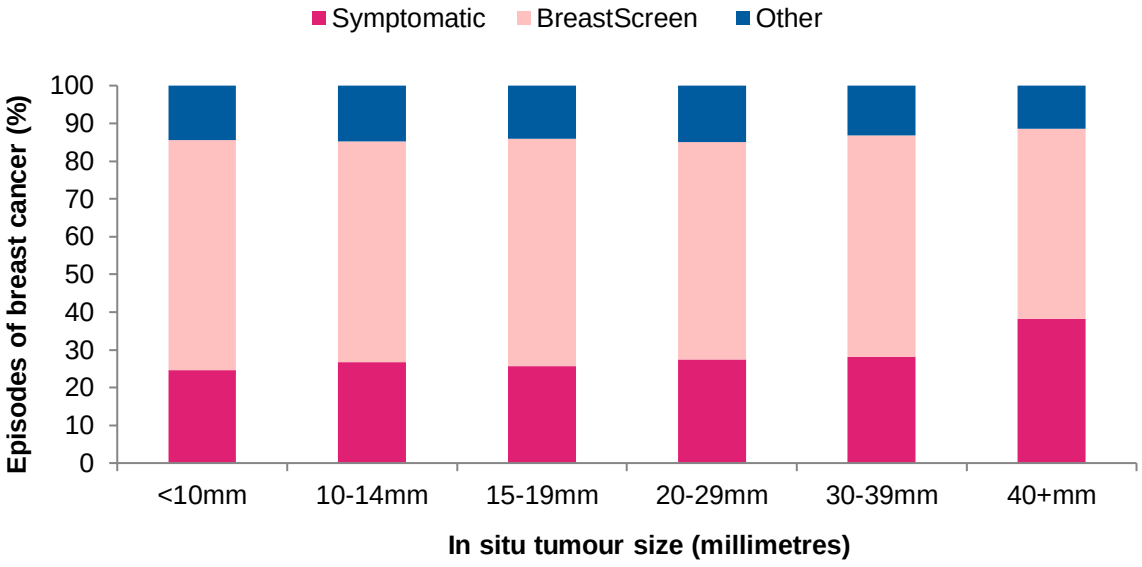
Figure 5: Referral source for invasive tumours, by tumour size for episodes diagnosed in 2017



Note: Excludes 44 episodes with missing information on referral source and 284 episodes where tumour size is missing. Patients referred from Other sources may include private screening programmes. Data provided in Appendix 3: Table 5.

The larger the invasive tumour, the more likely the patient was referred as symptomatic from a GP (from only 37% of tumours under 10mm to 74% of tumours of at least 40mm). BreastScreen referral was most common for smaller tumours, under 15mm (50%) and least common for large tumours of at least 40mm (19%).

Figure 6: Referral source for in situ tumours, by tumour size for episodes diagnosed in 2017

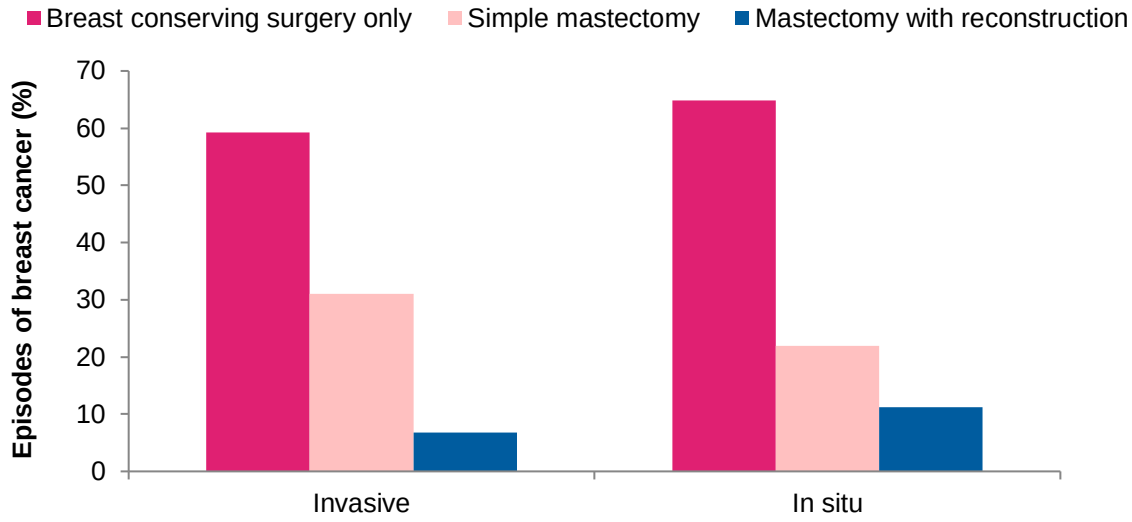


Note: Excludes 5 episodes with missing information on referral source and 29 episodes where tumour size is missing. Patients referred from Other sources may include private screening programmes. Data provided in Appendix 3: Table 6.

BreastScreen was the most common referral source for in situ tumours, regardless of tumour size. It was slightly less common for large tumours (40+mm), but still 50% of these tumours were referred from BreastScreen, compared with 38% symptomatic from a GP, and 11% from other sources.

6.2. Surgical treatment

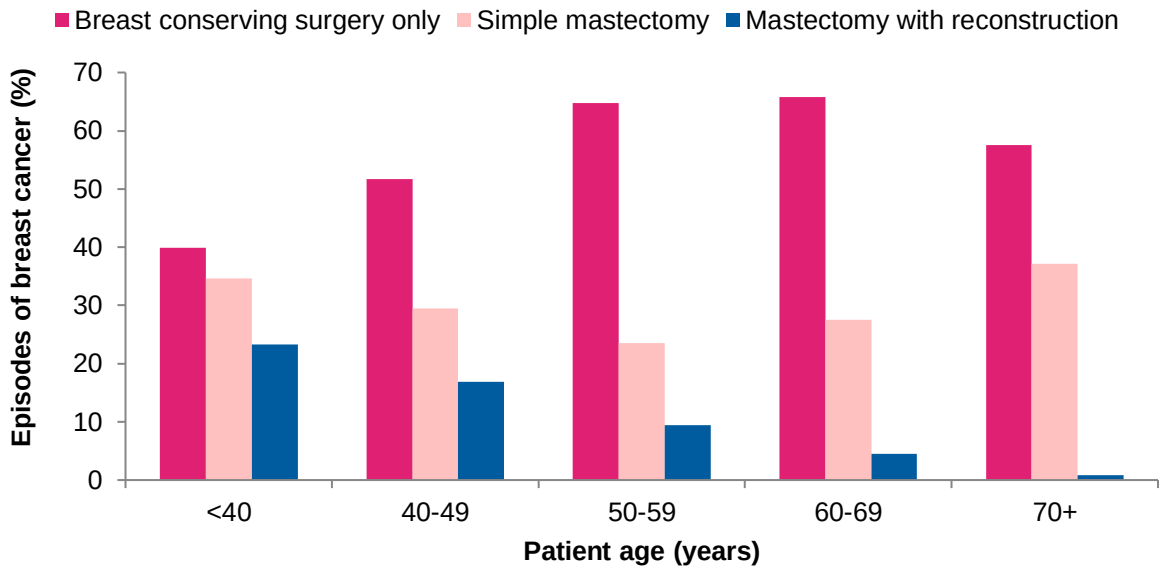
Figure 7: Final surgery for episodes diagnosed in 2017



Note: If patients were treated with both breast conserving surgery and mastectomy, they have been categorised as mastectomy. Excludes 42 episodes with missing information on invasive/in situ and 184 episodes where surgery information is missing. Excludes 'Other Surgery' and 'No Surgery', due to very small numbers. Mastectomy totals also include patients that underwent both mastectomy and breast conserving surgery. Data provided in Appendix 3: Table 7.

Most patients treated for invasive or in situ breast cancer received 'breast conserving surgery only'. Patients with in situ tumours were more likely to receive 'breast conserving surgery only' (66%) than patients with invasive tumours (59%). They were also less likely to have a simple mastectomy i.e. without reconstruction (22% compared with 31% of invasive tumours).

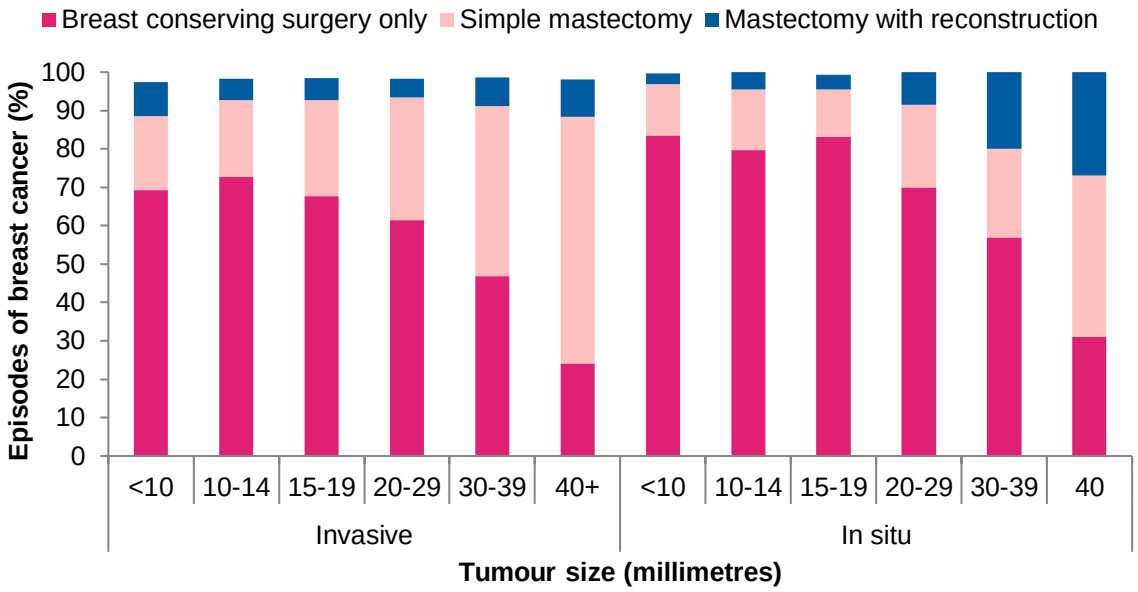
Figure 8: Final surgery, by patient age for episodes diagnosed in 2017



Note: Excludes 218 episodes with missing information on surgery. Excludes 'Other Surgery' and 'No Surgery', due to very small numbers. Mastectomy totals also include patients that underwent both mastectomy and breast conserving surgery. Data provided in Appendix 3: Table 8.

'Breast conserving surgery only' was most common in patients aged 50 to 69 years (65%) and least common in patients under 40 years (40%). 'Mastectomy, with reconstruction' was most common among patients under 40 years (23%) and least common in those aged 70 years or more (1%).

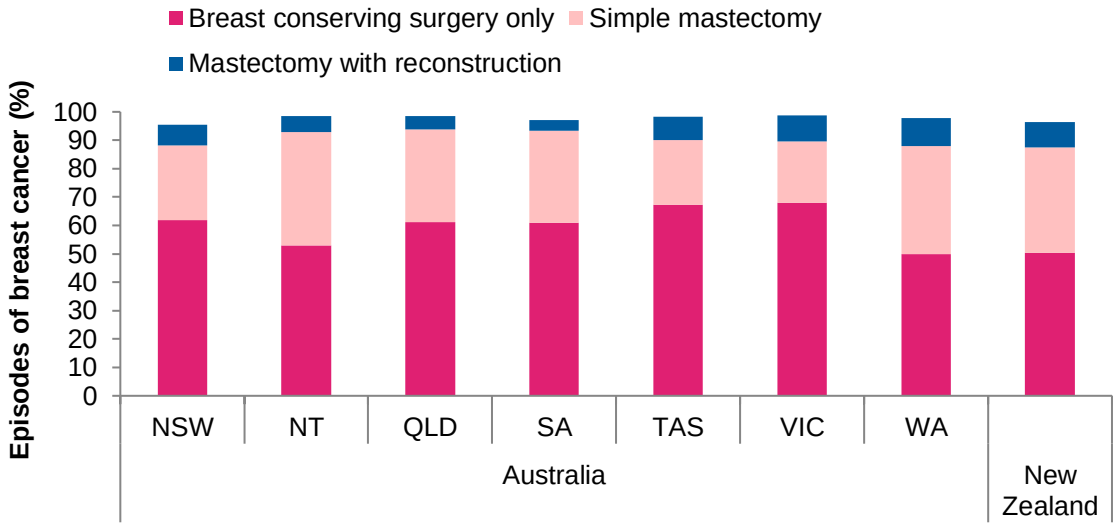
Figure 9: Final surgery, by tumour size for episodes diagnosed in 2017



Note: Excludes 184 episodes with missing information on surgery and 180 episodes with missing tumour size. Excludes 'Other Surgery' and 'No Surgery', due to very small numbers. Mastectomy totals also include patients that underwent both mastectomy and breast conserving surgery. Data provided in Appendix 3: Table 9.

The incidence of receiving 'breast conserving surgery only' decreased as tumour size increased for both invasive and in situ tumours. The incidence of 'simple mastectomy' rose with increased tumour size for both invasive and in situ tumours, and the incidence of 'mastectomy with reconstruction' increased only for in situ tumours.

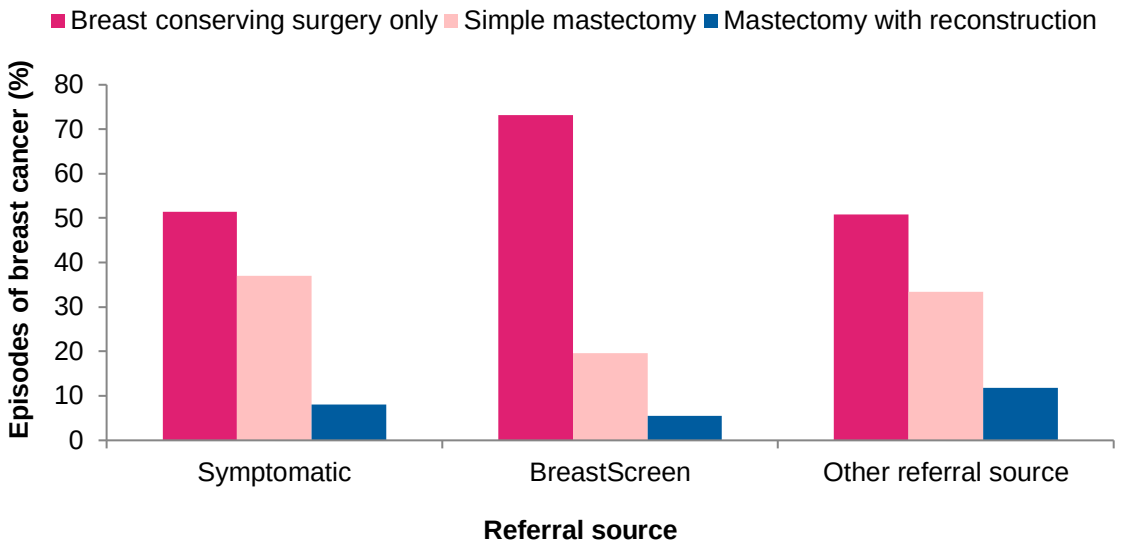
Figure 10: Final surgery, by treatment location for episodes diagnosed in 2017



Note: Excludes 218 episodes with missing information on surgery and 19 episodes with missing location. Excludes 'Other Surgery' and 'No Surgery', due to very small numbers. Mastectomy totals also include patients that underwent both mastectomy and breast conserving surgery. Data provided in Appendix 3: Table 10.

''Breast conserving surgery only' is most common in Victoria (68%) and least common in Western Australia and New Zealand (both 50%). Simple mastectomies are most common in Northern Territory (40%) and least common in Victoria (22%). Mastectomy with reconstruction is most common in Western Australia (10%) and least common in South Australia (4%).

Figure 11: Final surgery, by referral source for episodes diagnosed in 2017

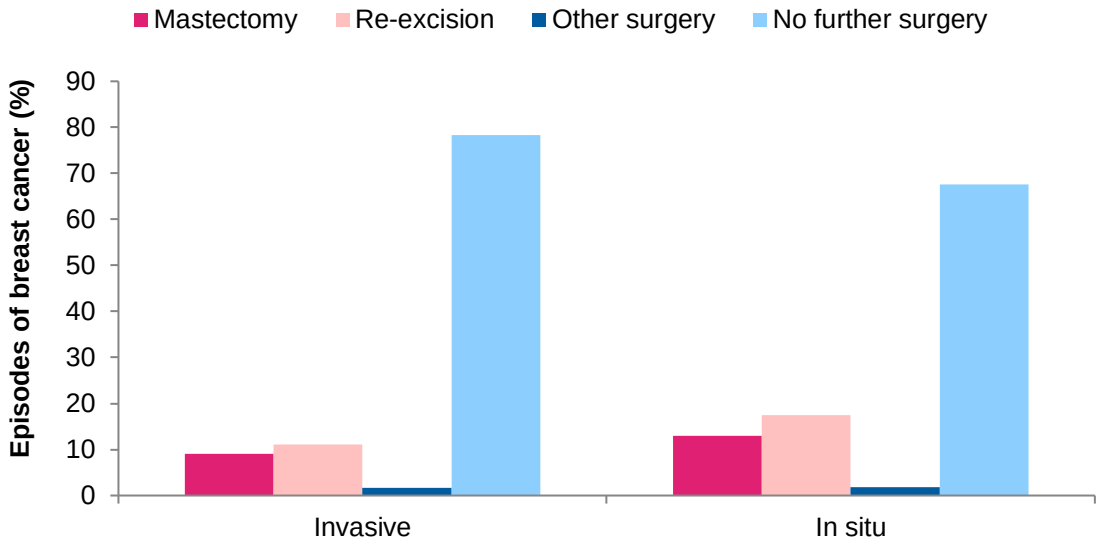


Note: Excludes 218 episodes with missing information on surgery and 35 episodes with missing referral source. Excludes 'Other Surgery' and 'No Surgery', due to very small numbers. Patients referred from Other sources may include private screening programmes. Mastectomy totals also include patients that underwent both mastectomy and breast conserving surgery. Data provided in Appendix 3: Table 11.

'Breast conserving surgery only' treatment was more common for patients referred by BreastScreen (73%) than symptomatic patients from GP (51%).

6.3. Further surgical treatment after breast conserving surgery

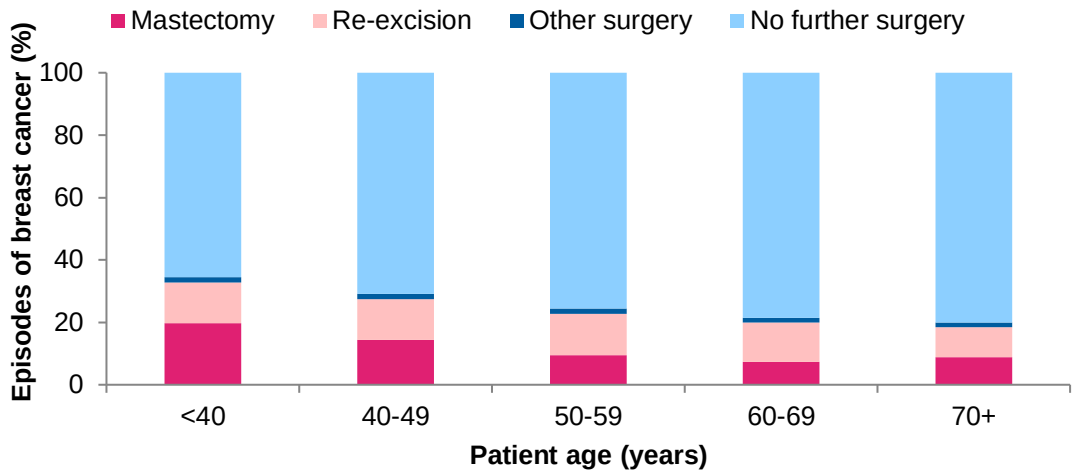
Figure 12: Further surgery after breast conserving surgery for episodes diagnosed in 2017



Note: Excludes 3 breast conserving surgery episodes with missing information on invasive/In situ. As surgeries often occur on the same day, for this report, further surgery is defined by intrusiveness e.g. a patient who had re-excision and a mastectomy would be counted under mastectomy. Data provided in Appendix 3: Table 12.

Most episodes of invasive cancer treated with breast conserving surgery received no further surgery (78%), compared with 68% of in situ tumours. The most common further surgery was re-excision (11% of invasive and 18% of in situ), followed by mastectomy (9% of invasive and 13% of in situ).

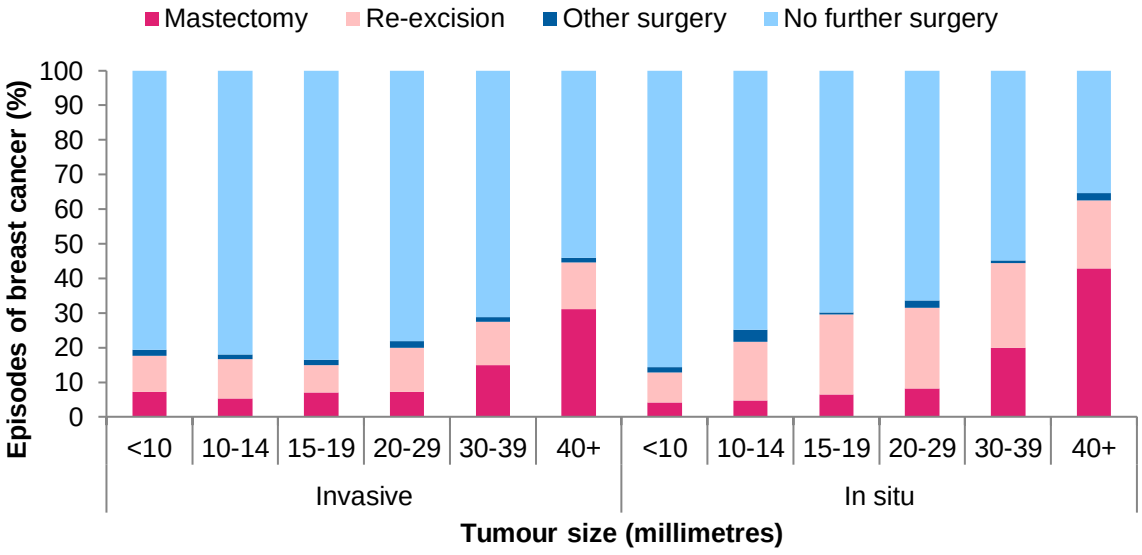
Figure 13: Further surgery after breast conserving surgery, by patient age for episodes diagnosed in 2017



Note: No missing data. As surgeries often occur on the same day, for this report, further surgery is defined by intrusiveness e.g. a patient who had re-excision and a mastectomy would be counted under mastectomy. Data provided in Appendix 3: Table 13.

The proportion of episodes of breast conserving surgery that did not receive further surgery increased with patient age (from 66% of patients under 40 years of age to 80% of those 70 years or older). The proportion receiving re-excision after breast conserving surgery was similar across ages. Patients aged under 40 years had the highest proportion of mastectomies after breast conserving surgery (20%).

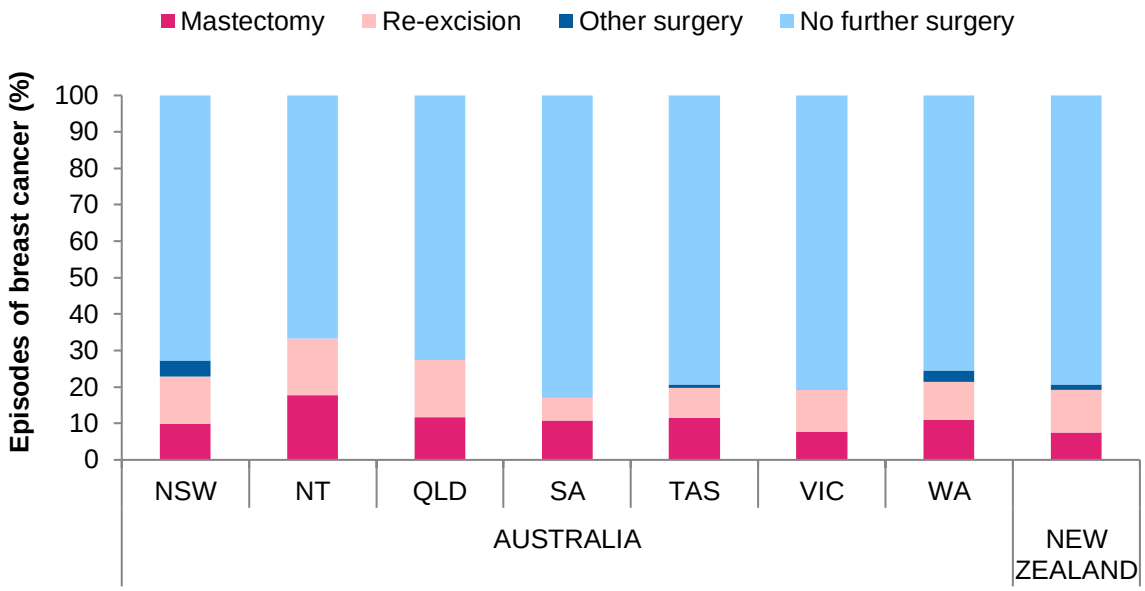
Figure 14: Further surgery after breast conserving surgery, by tumour size for episodes diagnosed in 2017



Note: Excludes 46 breast conserving surgery episodes with missing information on tumour size. As surgeries often occur on the same day, for this report, further surgery is defined by intrusiveness e.g. a patient who had re-excision and a mastectomy would be counted under mastectomy. Data provided in Appendix 3: Table 14.

The possibility of further surgery after breast conserving surgery rose with increasing tumour size. The incidence of both mastectomy and re-excision increased with in situ tumour size. Mastectomy incidence increased with invasive tumour size over 30mm, but the incidence of re-excision remained similar across tumour sizes.

Figure 15: Further surgery after breast conserving surgery, by treatment location for episodes diagnosed in 2017

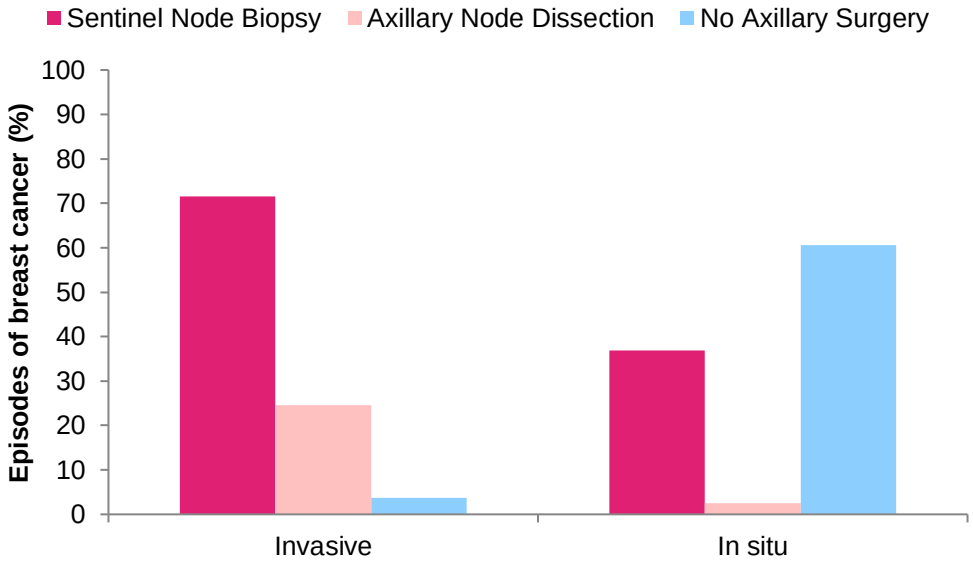


Note: Excludes 9 breast conserving surgery episodes with missing information on region. As surgeries often occur on the same day, for this report, further surgery is defined by intrusiveness e.g. a patient who had re-excision and a mastectomy would be counted under mastectomy. Data provided in Appendix 3: Table 15.

Further surgery after breast conserving surgery was most common in Northern Territory (33%) and least common in South Australia (17%).

6.4. Axillary surgery

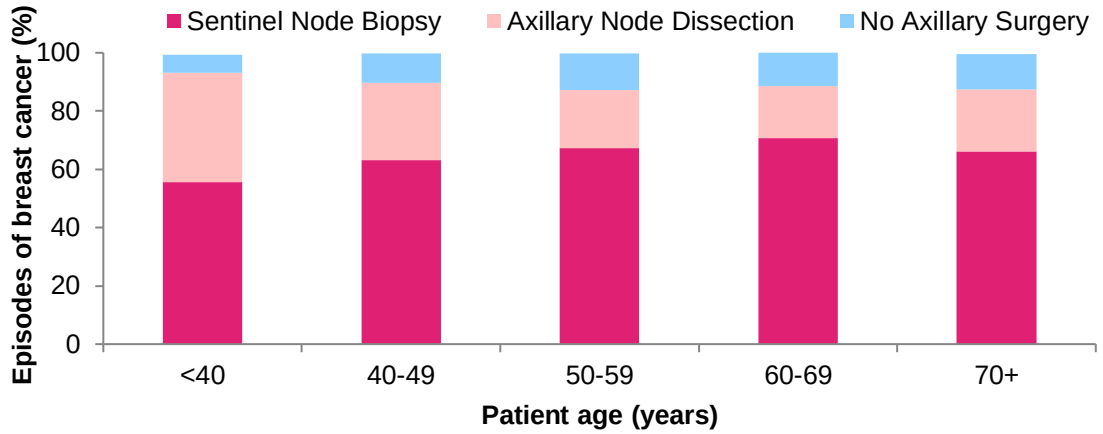
Figure 16: Axillary surgery by cancer type for episodes diagnosed in 2017



Note: Excludes 365 episodes with missing information on axillary surgery and 7 episodes with missing information on invasive/in situ. Data provided in Appendix 3: Table 16.

The majority of invasive tumours have some form of axillary surgery (96%), compared with 39% of in situ tumours. Most commonly, patients will have sentinel node biopsy only (72% of invasive and 37% of in situ).

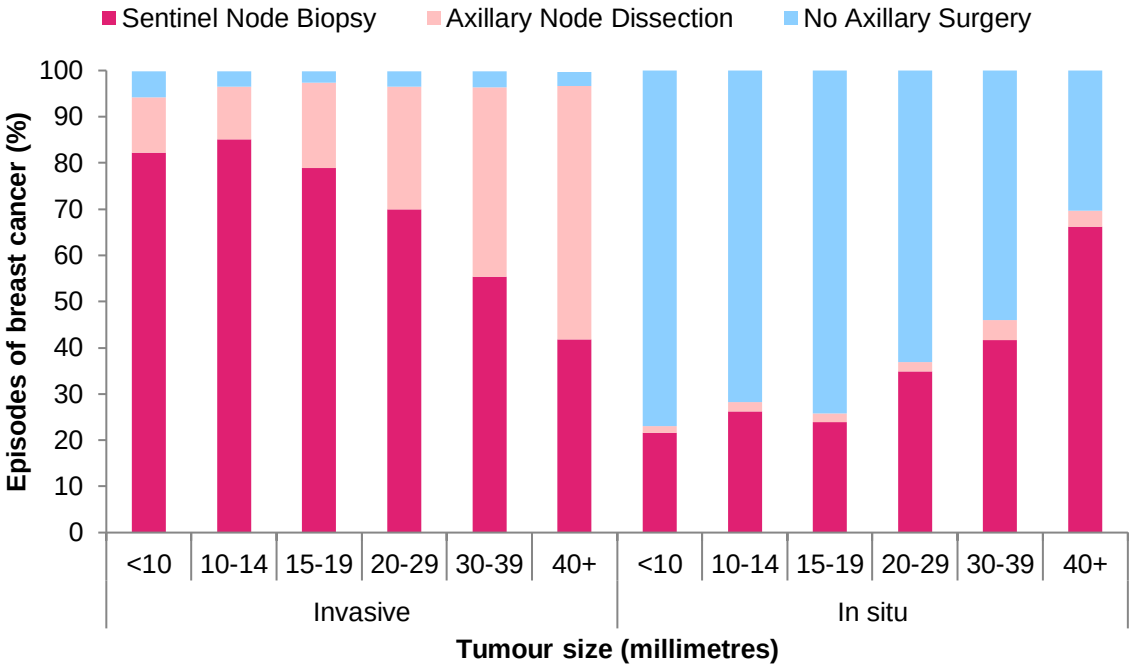
Figure 17: Axillary surgery, by patient age for episodes diagnosed in 2017



Note: Excludes 342 episodes with missing information on axillary surgery. Excludes 'unknown level of axillary surgery' due to very small numbers. Data provided in Appendix 3: Table 17.

Axillary node dissection was most common among patients under 40 years of age (38%), and sentinel node biopsy was most common among those aged 60-69 years (71%).

Figure 18: Axillary surgery, by tumour size for episodes diagnosed in 2017



Note: Excludes 330 episodes with missing information on axillary surgery, 79 episodes with missing tumour size and 42 episodes with missing invasive/in situ information. Excludes 'unknown level of axillary surgery' due to very small numbers. Data provided in Appendix 3: Table 18.

Small invasive tumours are most likely to only have sentinel node biopsy (84% of tumours less than 15mm). Axillary node dissection becomes more common as the tumour size increases for invasive tumours (55% of tumours of at least 40mm had axillary node dissection).

Small in situ tumours are most likely not to have any axillary surgery (75% of tumours under 20mm). As the tumour becomes larger, the likelihood of sentinel node biopsy increases (66% in tumours at least 40mm). Axillary node dissection is rare for in situ tumours.

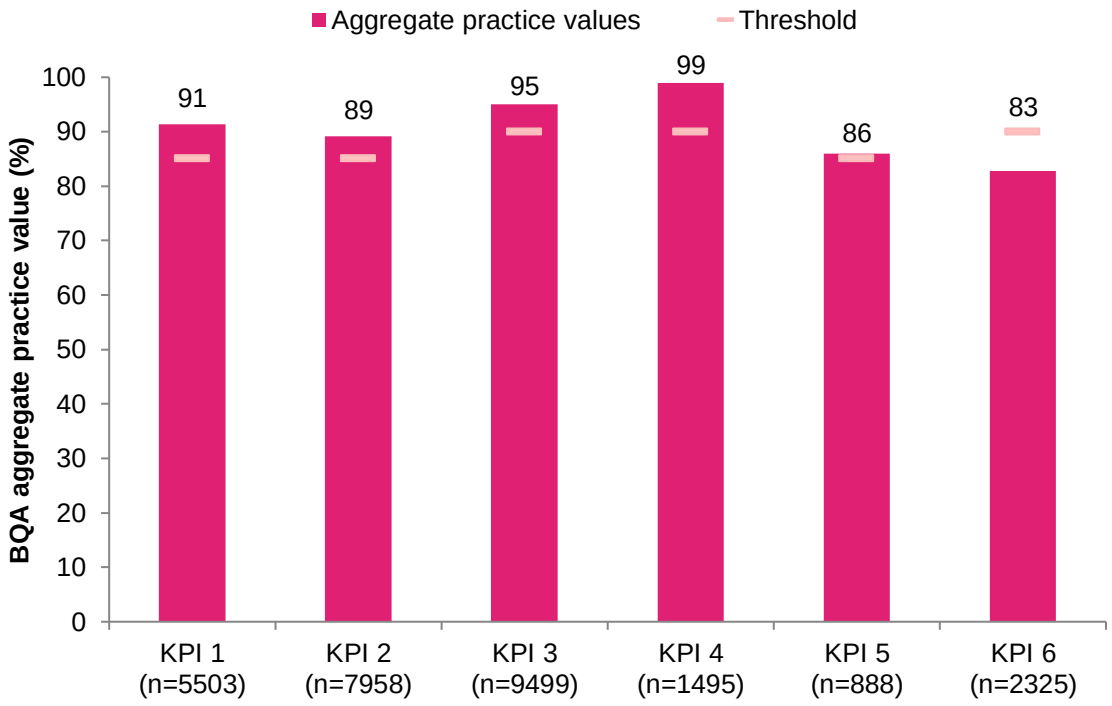
6.5. Key Performance Indicators

The audit is currently a self-reflective tool, with each surgeon having access to real-time results of their own performance against the KPI thresholds through the audit portal.

The current KPIs and thresholds are:

No.	Key Performance Indicator	Quality threshold
1	Percentage of invasive cases undergoing breast conserving surgery referred for radiotherapy	85%
2	Percentage of oestrogen positive invasive cases referred for hormonal therapy	85%
3	Percentage of invasive cases undergoing axillary surgery	90%
4	Percentage of in situ cases undergoing breast surgery without axillary clearance	90%
5	Percentage of high-risk invasive cases undergoing mastectomy referred for radiotherapy	85%
6	Percentage of high-risk cases referred for chemotherapy	90%

Figure 19: Key Performance Indicators - overall compliance for episodes diagnosed in 2017



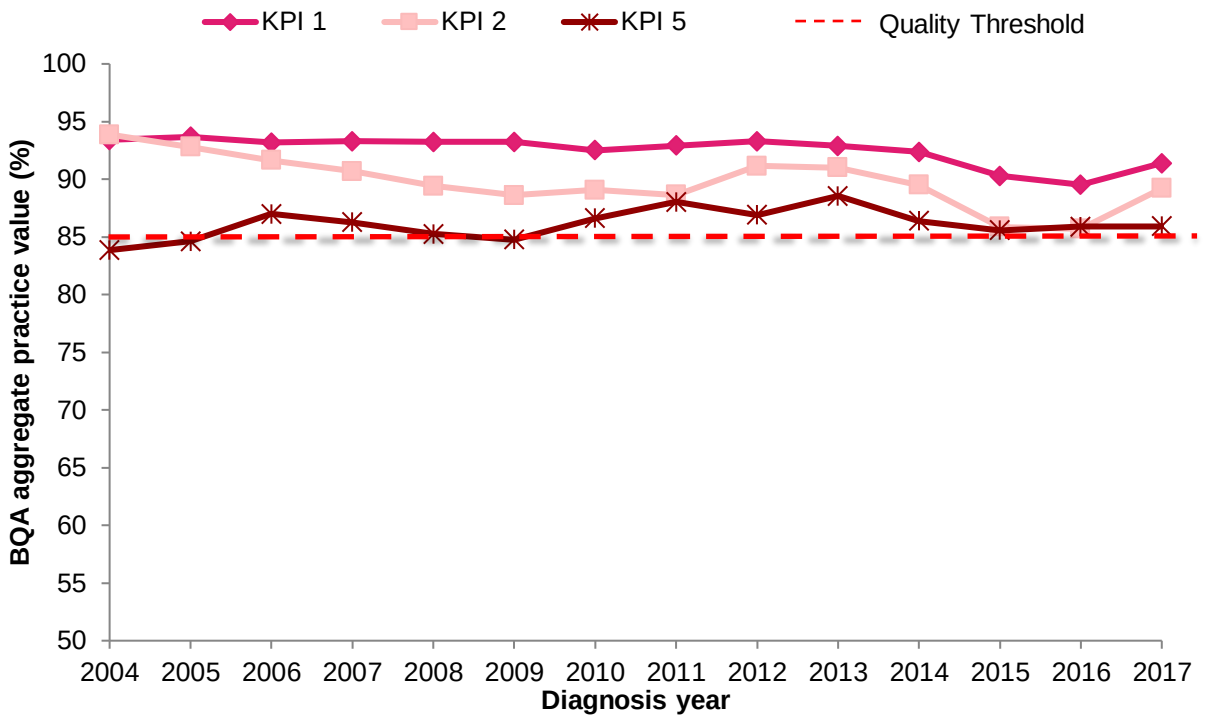
Note: Excluded case counts are 269 for KPI 1, 393 for KPI 2, 223 for KPI 3, 60 for KPI 4. Excluded cases are not calculated for KPI 5 and KPI 6. KPI 6 will be amended in 2019 to consider neoadjuvant chemotherapy. Data provided in Appendix 3: Table 19.

Figure 19 shows the combined performance for all surgeons in Australia and New Zealand, for cases with diagnosis dates in 2017. Surgeons in Australia and New Zealand are meeting BQA Key Performance Indicators 1 to 5.

The audit participants do not currently meet the threshold for KPI 6. However, this KPI is shortly to be amended (see Section 7.5). Analysis of the KPI over time (Figure 21 overleaf) shows that the proportion of episodes following the KPI has been falling since 2014. It is theorised that this is due to increased use of neoadjuvant chemotherapy. If neoadjuvant chemotherapy is taken into account, the practice value increases to 91%, thus meeting the quality threshold.

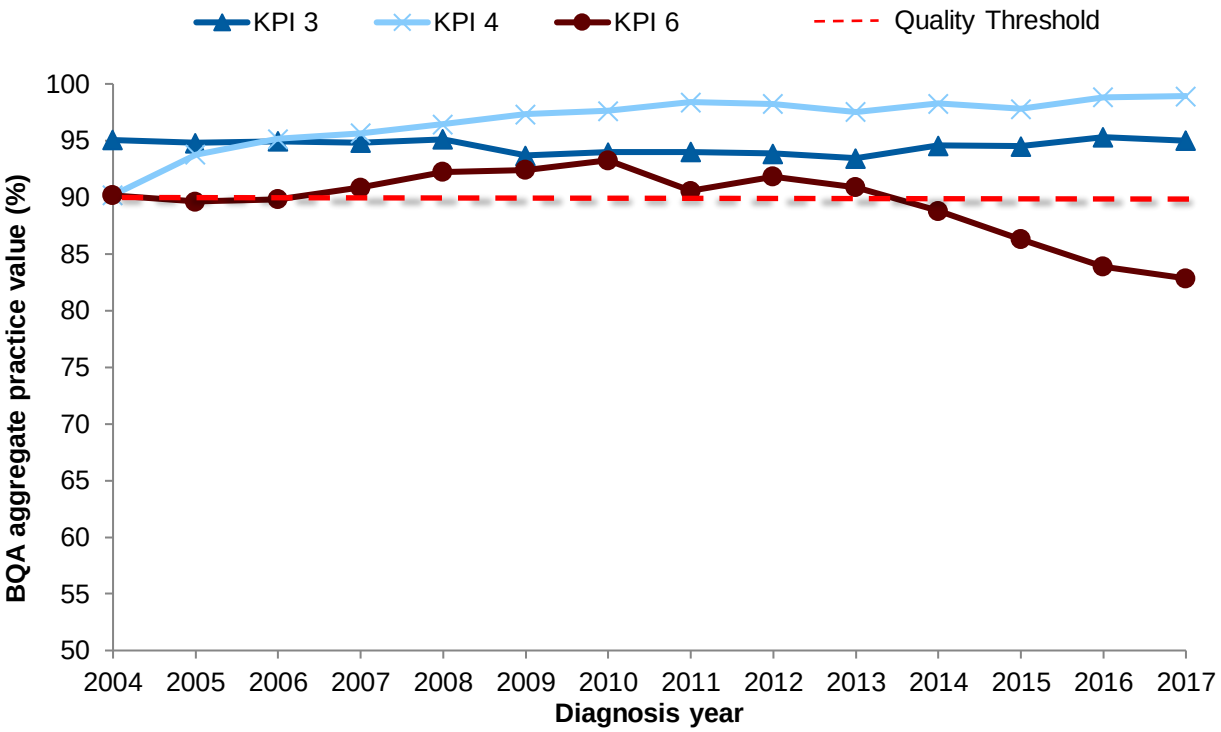
Figures 20 and 21 give the performance for each KPI over time.

Figure 20: Key Performance Indicators with quality threshold at 85% - Overall compliance by year



Note: Data provided in Appendix 3: Table 20.

Figure 21: Key Performance Indicators with quality threshold at 90% - Overall compliance by year



Note: KPI 6 will be amended in 2019 to consider neoadjuvant chemotherapy. Data provided in Appendix 3: Table 21.

7. FUTURE DIRECTIONS

7.1. Strategic and business planning

It is intended to develop a strategic and business plan to guide the audit into the future, prioritising coverage, data quality and enhancing its relevance and benefits.

7.2. Full implementation of an outliers process

An outliers process will involve peer-review of practice results for individual surgeons against each current KPI. The details of this process are complex and still being finalised by the BQA Subcommittee and the BreastSurgANZ Council.

7.3. Addition of an oncoplastic dataset

The collection of a separate oncoplastic dataset within the audit is currently under consideration. The audit team has been investigating possible ways that this could be accomplished, and the advantages and disadvantages of each approach.

7.4. Patient-reported outcome measures (PROMs)

PROMs are patient assessments of how health services and interventions have affected their quality of life, daily functioning, symptom severity, and general health. Collection from BQA patients would provide valuable data on treatment effectiveness and variations in healthcare, helping to achieve the audit's aim in improving the quality of care provided by BreastSurgANZ surgeons.

Investigations into how this can be best achieved for the BQA are currently underway in a collaboration with researchers from the University of South Australia.

7.5. Amendment to KPI 6 - Percentage of high-risk cases referred for chemotherapy

It is noted that some members are no longer meeting KPI 6 (*Percentage of high-risk cases referred for chemotherapy*). The presumed cause is a change in practice where the use of neoadjuvant chemotherapy is becoming more common; this KPI currently only includes the adjuvant chemotherapy field.

The proposal to have KPI 6 consider neoadjuvant chemotherapy was discussed and approved at the BQA Subcommittee meeting on 16 January 2018. This change will be implemented in 2019.

APPENDIX 1: DATASETS

Minimum Dataset: Invasive cancer

BreastSurgANZ QUALITY AUDIT

INVASIVE CANCER minimum data set form

Surgeon name	

Patient details

Surname (first 3 letters)		Postcode	
Date of birth	(dd-mm-yyyy)	Private/Public	☐ Private ☐ Public ☐ Unknown
Gender	☐ Female ☐ Male	Clinic reference	
Indigenous Status	☐ Non-Indigenous ☐ Aboriginal ☐ Torres Strait Islander ☐ Both Aboriginal and Torres Strait Islander ☐ Maori ☐ Pacific Peoples ☐ Unknown	Hospital	
		Breast Care Nurse	☐ Yes ☐ No ☐ Unknown
		Multi-disciplinary Treatment	☐ Yes ☐ No ☐ Unknown

Diagnosis

Diagnosis date	(dd-mm-yyyy)	Menopausal status	☐ Pre ☐ Peri ☐ Post ☐ Male
Referral source	☐ Symptomatic from GP ☐ Breast Screen Australia ☐ Breast Screen Aotearoa (NZ) ☐ Other	Gestational status	☐ Currently pregnant ☐ Recently pregnant (last 12 months) ☐ Not pregnant (now or last 12 mths)
Bilateral synchronous	☐ Yes ☐ No		

Surgery – date (dd-mm-yyyy) **No breast surgery ☐**

Open biopsy		CLE		Re-excision	
Total mastectomy		Reconstruction			

Axillary surgery – date (dd-mm-yyyy) **No axillary surgery ☐**

Sentinel node		Level 1		Level 2		Level 3	

Invasive pathology

Tumour size in mm		Histological grade of tumour	☐ Grade 1 ☐ Grade 2 ☐ Grade 3
Total extent of lesion in mm (DCIS plus invasive carcinoma)		Vascular/lymphatic invasion	☐ Present ☐ Absent

Histological type of tumour		
☐ Ductal NOS	☐ Basal-like	
☐ Other neoplasm	☐ Tubular	
☐ Invasive Lobular	☐ Mixed type	
☐ Medullary	☐ Mucinous	

Receptor status	Oestrogen	Progesterone	HER 2
Positive	☐	☐	☐
Negative	☐	☐	☐
Not done	☐	☐	☐

Distance (in mm) to closest circumferential margin		Number of axillary nodes examined	
Distance (in mm) to closest vertical margin		Number of positive axillary nodes	

Adjuvant therapies

	Radiotherapy	Chemotherapy	SERMs	Ovarian ablation	Aromatase inhibitors	Herceptin (immunotherapy)
Yes	☐	☐	☐	☐	☐	☐
No	☐	☐	☐	☐	☐	☐
Referred but not used	☐	☐	☐	☐	☐	☐

Neoadjuvant therapies

	Radiotherapy	Chemotherapy	SERMs	Ovarian ablation	Aromatase inhibitors	Herceptin (immunotherapy)
Yes	☐	☐	☐	☐	☐	☐
No	☐	☐	☐	☐	☐	☐

Refusal of any recommended treatment (multi-select)

☐ No	☐ BCS	☐ Mastectomy	☐ Axillary surgery	☐ Radiotherapy
☐ Chemotherapy	☐ Hormone therapy	☐ Unspecified refusal	☐ Herceptin	☐ Reconstruction

Please note that all questions require a response except Gestational status, and Total extent of lesion.

Minimum Dataset: DCIS

BreastSurgANZ QUALITY AUDIT

DCIS minimum data set form

Surgeon	

Patient details

Surname (first 3 letters)		***Postcode***	
Date of birth	(dd-mm-yyyy)	***Private/Public***	☐ Private ☐ Public ☐ Unknown
Gender	☐ Female ☐ Male	***Clinic reference***	
Indigenous Status	☐ Non-Indigenous ☐ Aboriginal ☐ Torres Strait Islander ☐ Both Aboriginal and Torres Strait Islander ☐ Maori ☐ Pacific Peoples ☐ Unknown	***Hospital***	
		Breast Care Nurse	☐ Yes ☐ No ☐ Unknown
		Multi-disciplinary Treatment	☐ Yes ☐ No ☐ Unknown

Diagnosis

Diagnosis date	(dd-mm-yyyy)
Referral source	☐ Symptomatic from GP ☐ Breast Screen Australia ☐ Breast Screen Aotearoa (NZ) ☐ Other
Bilateral synchronous	☐ Yes ☐ No
Menopausal status	☐ Pre ☐ Peri ☐ Post ☐ Male
Gestational status	☐ Currently pregnant ☐ Recently pregnant (last 12 months) ☐ Not pregnant (now or last 12 mths)

Surgery date (dd-mm-yyyy)

Open biopsy		CLE		Re-excision	
Total mastectomy		Reconstruction		No breast surgery	☐

Axillary surgery date (dd-mm-yyyy)

Sentinel node		Level 1/sampling		Level 2	
Level 3		No axillary surgery	☐		

DCIS pathology

Tumour size in mm		***Histological grade of tumour***	☐ Low ☐ Medium ☐ High
Distance (in mm) to closest circumferential margin		***Number of axillary nodes examined***	
Distance (in mm) to closest vertical margin		***Number of positive axillary nodes***	
Necrosis	☐ No necrosis ☐ Necrosis ☐ Not applicable		

Adjuvant therapies

	Radiotherapy	***SERMs***	***Aromatase inhibitors***
Yes	☐	☐	☐
No	☐	☐	☐
Referred but not used	☐	☐	☐

Refusal of any recommended treatment (multi-select)

☐ No	☐ BCS	☐ Mastectomy	☐ Axillary surgery	☐ Radiotherapy
☐ Chemotherapy	☐ Hormone therapy	☐ Unspecified refusal	☐ Herceptin	☐ Reconstruction

Please note that all questions require a response except Gestational status

Full Dataset

BreastSurgANZ QUALITY AUDIT

Surgeon name ☐

Please note that the ## marked fields are MANDATORY for a save.
The # marked fields are REQUIRED for a case to be considered complete.

Patient Details

Patient Name (first 3 letters of last name) ## ☐ *Hospital / Clinic ##* ☐

Patient Date of Birth ## ☐ *Your clinic reference ##* ☐

Patient postcode## ☐ *Diagnosis date ##* ☐

Gender ## ☐ Female ☐ Male *Private / Public ##* ☐ Private ☐ Public ☐ Unknown

Indigenous Status##
☐ Non-Indigenous
☐ Aboriginal
☐ Torres Strait Islander
☐ Both Aboriginal and Torres Strait Islander
☐ Maori
☐ Pacific Peoples
☐ Unknown

Enrolled in trial ☐ Yes ☐ No
Breast Care Nurse ☐ Yes ☐ No ☐ Unknown
Multi-disciplinary Treatment ☐ Yes ☐ No ☐ Unknown

Diagnosis

Invasive / In situ # ☐ Invasive ☐ In situ | *Bilateral synchronous#* ☐ No ☐ Yes

Referral source # ☐ Symptomatic (from GP) ☐ Breast Screen Australia ☐ Breast Screen Aotearoa (NZ) ☐ Other

Previous surgery ☐ No previous surgery ☐ Same breast ☐ Contralateral breast ☐ Both breasts ☐ Unknown

Menopausal status # ☐ Pre ☐ Peri ☐ Post ☐ Male

Gestational status ☐ Currently pregnant ☐ Recently pregnant (last 12 months) ☐ Not pregnant (now or last 12 months)

Laterality ☐ Left ☐ Right

Position of principal tumour
☐ Unknown ☐ Superolateral ☐ Inferolateral ☐ Superomedial ☐ Inferomedial ☐ Axillary tail
☐ Lateral ☐ Medial ☐ Superior ☐ Inferior ☐ Central ☐ > 1 quadrant

If the patient refused any treatment, please indicate what treatment was declined#
☐ No ☐ Conservative Tx ☐ Mastectomy ☐ Axillary surgery ☐ Radiotherapy
☐ Chemotherapy ☐ Hormone therapy ☐ Unspecified refusal ☐ Reconstruction ☐ Herceptin or other immunotherapy

Did you prescribe or refer this patient for any of the following adjuvant / neo-adjuvant therapies? #

		Radiotherapy	*Chemotherapy*	*SERMs*	*Ovarian Ablation*	*Aromatase Inhibitors*	*Herceptin or other immunotherapy*
Adjuvant?	Yes	☐	☐	☐	☐	☐	☐
	No	☐	☐	☐	☐	☐	☐
Referred but not used		☐	☐	☐	☐	☐	☐
Neo-adjuvant?	Yes	☐	☐	☐	☐	☐	☐
	No	☐	☐	☐	☐	☐	☐

Procedures

Diagnostic Procedures

Diagnosis Method	*Tick if applicable*	*Positive Y/N*
Clinical Exam		
Mammography		
Ultrasound		
FNA-Cytology		
Core		
Other		

Surgical Events#

Surgical Event	*Surgery Date*	*Discharge Date*
Open Biopsy		
CLE		
Re Excision		
Total Mastectomy		
Reconstruction		
Other		
ABBI		

No Breast Surgery ☐

Axillary Procedures #

Surgical Event	*Surgery Date*	*Discharge Date*
Sentinel Node		
Level 1		
Level 2		
Level 3		
Unknown		

No Axillary surgery ☐

BreastSurgANZ QUALITY AUDIT

Pathology - Invasive

Histological type of invasive tumour #	☐ Ductal NOS	☐ Basal-like	☐ Invasive lobular	☐ Mixed type	☐ Other neoplasm
	☐ Unknown	☐ Tubular	☐ Medullary	☐ Mucinous	

Invasive tumour size in mm # ☐☐☐

*Total extent of lesion in mm (DCIS plus invasive carcinoma) *if greater than invasive tumour size* ☐☐☐

Histological grade of invasive tumour #	☐ Grade 1	☐ Grade 2	☐ Grade 3	☐ Unknown
Number of invasive breast cancers	☐ One	☐ Two	☐ Multicentric	☐ Unknown
Vascular / Lymphatic invasion #	☐ Present	☐ Absent	☐ Unknown	

Final assessment of relevant margins – Invasive

Orientation of closest circumferential margin ☐ Lateral ☐ Medial ☐ Superior ☐ Inferior ☐ Unknown/Not available

Distance (in mm) to closest circumferential margin # ☐☐☐ (Whole numbers only)

Orientation of closest vertical margin ☐ Superficial ☐ Deep ☐ Unknown/Not available

Distance (in mm) to closest vertical margin # ☐☐☐ (Whole numbers only)

Pathology - DCIS

DCIS size in mm# ☐☐☐

Histological grade of lesion #	☐ Low	☐ Intermediate	☐ High	☐ Unknown	
Necrosis present #	☐ No necrosis	☐ Necrosis	☐ Not applicable		
Dominant pattern	☐ Solid	☐ Cribriform	☐ Micropapillary	☐ Other	☐ Unknown / na
Other pattern	☐ Solid	☐ Cribriform	☐ Micropapillary	☐ Other	☐ Unknown / na

Final assessment of relevant margins – In situ

Orientation of closest circumferential margin ☐ Lateral ☐ Medial ☐ Superior ☐ Inferior ☐ Unknown/Not available

Distance (in mm) to closest circumferential margin # ☐☐☐ (Whole numbers only)

Orientation of closest vertical margin ☐ Superficial ☐ Deep ☐ Unknown/Not available

Distance (in mm) to closest vertical margin # ☐☐☐ (Whole numbers only)

Number of nodes examined # ☐☐☐ *Number of positive nodes #* ☐☐☐

Receptor status #	*Oestrogen*	*Progesterone*	*HER 2*
Positive	☐	☐	☐
Negative	☐	☐	☐
Ordered but not yet known*	☐	☐	☐
Not done	☐	☐	☐

*If this option is checked for any field, the case will remain incomplete in the system until the answer is replaced with a positive or negative result.

Sentinel

a) Pre-operative scintigraphy

Was scintigraphy conducted? ☐ Yes ☐ No *Scintigraphy date* ☐

Number of nodes in the following locations

None ☐ Lower axilla ☐ Upper axilla ☐ Supraclavicular ☐ Internal mammary ☐

b) Sentinel Node Biopsy

Number of nodes ☐

Nodes detected with ☐ Isotope ☐ Blue dye ☐ Both ☐ Unknown

Position and number of located nodes

Lower axilla ☐ Upper axilla ☐ Supraclavicular ☐ Internal mammary ☐ Other ☐

Final pathology of sentinel nodes

Number of sentinel nodes histologically positive ☐ None ☐ One node ☐ Two nodes ☐ Three nodes ☐ > three nodes

Follow-up

Follow-up date ☐

Patient status

☐ Free of recurrence ☐ Progression of disease ☐ Local recurrence ☐ Systemic recurrence ☐ New breast cancer

☐ New unrelated cancer ☐ Death, breast cancer related ☐ Death, not related to breast cancer ☐ Death, unknown cause ☐ Transferred care

☐ Lost to follow-up ☐ Unknown ☐ Partial clinical response ☐ Complete clinical response ☐ Stable disease

Clinical Exam Results ☐ Not done ☐ No abnormality ☐ Abnormal ☐ Unknown

Mammogram Results ☐ Not done ☐ No abnormality ☐ Abnormal ☐ Unknown

Ultrasound Results ☐ Not done ☐ No abnormality ☐ Abnormal ☐ Unknown

Lymphodema ☐ None ☐ Mild ☐ Moderate ☐ Severe ☐ Extreme ☐ Unknown

Cosmetic status ☐ Good ☐ Fair ☐ Poor ☐ Mastectomy ☐ Unknown

Next appointment date (time from follow-up date)

☐ ☐ Days ☐ Weeks ☐ Months ☐ Years

Comments

APPENDIX 2: PARTICIPATING HOSPITALS

This Appendix lists the hospitals for which the audit has data with a 2017 diagnosis date (at point of data extract on 6 December 2018).

AUSTRALIA: NEW SOUTH WALES

Albury Base Hospital
Albury Wodonga Private Hospital
Auburn Hospital
Bankstown Lidcombe Hospital
Baringa Private Hospital
Bathurst Base Hospital
Belmont District Hospital
Blacktown Hospital
Bowral and District Hospital
Calvary Hospital
Calvary Mater Newcastle (prev. Misericordiae)
Camden Hospital
Campbelltown Hospital
Campbelltown Hospital MacArthur Cancer Th. Ctr.
Campbelltown Private Hospital
Canterbury Hospital
Casino Hospital
Chris O'Brien Lifehouse
Coffs Harbour Health Campus
Concord Repatriation General Hospital
Dubbo Base Hospital
Dubbo Private Hospital
Dudley Orange Private Hospital
Fairfield Hospital
Figtree Private Hospital
Gosford Hospital
Gosford Private Hospital
Hornsby Ku-Ring-Gai Hospital & C'ty Health
Hospital for Specialist Surgery
Hunters Hill Private Hospital
Lake Macquarie Private Hospital
Lingard Private Hospital
Lismore Base Hospital
Liverpool Hospital
Macquarie University Hospital
Maitland Hospital
Manly Hospital
Mater Hospital
Mount Druitt Hospital
Nepean Private Hospital
Nepean Public Hospital
North Shore Private Hospital
Norwest Private Hospital
Orange Base Hospital
Port Macquarie Private Hospital
Prince of Wales Hospital
Prince of Wales Private Hospital
Royal Hospital for Women
Royal North Shore Hospital
Royal Prince Alfred Hospital
Ryde Hospital and Community Health Service
Shoalhaven District Memorial Hospital
Southern Highlands Private Hospital
St George Private Hospital
St Luke's Hospital
St Vincents General Hospital
St Vincents Private Hospital (Bathurst)
St Vincents Private Hospital (Darlinghurst)
St Vincents Private Hospital (Lismore)
Strathfield Private Hospital
Sydney Adventist Hospital
Sydney Southwest Private Hospital
Tamara Private Hospital
Tamworth Base Hospital
The Tweed Hospital
The Wollongong Hospital
Wagga Wagga Base Hospital
Westmead Hospital
Westmead Private Hospital

AUSTRALIA: NORTHERN TERRITORY

Darwin Private Hospital
Royal Darwin Hospital

AUSTRALIA: QUEENSLAND

Caboolture Hospital
Cairns Base Hospital
Cairns Private
Friendly Society Private Hospital
Gladstone Hospital
Gold Coast Hospital - Southport
Gold Coast Hospital - Robina
Gold Coast Private Hospital
Greenslopes Private Hospital
Hillcrest-Rockhampton Private Hospital
Holy Spirit Northside
Ipswich Hospital
John Flynn-Gold Coast Private Hospital
Mackay Base Hospital
Mater Adult Hospital
Mater Hospital (North Mackay)
Mater Hospital (Rockhampton)
Mater Misericordiae Hospital (Bundaberg)
Mater Misericordiae Hospital (Gladstone)
Mater Misericordiae Hospital (Townsville)
Mater Private Hospital
Mater Private Hospital Redland
Northwest Private Hospital
Pindara Gold Coast Private Hospital
Prince Charles Hospital
Princess Alexandra Hospital
Queen Elizabeth II Hospital
Redcliffe-Caboolture Health Service District
Redland Hospital and Health Service Centre
Rockhampton Hospital
Royal Brisbane Hospital
St Andrews Private Hospital
St Andrews Toowoomba Hospital
St Andrew's War Memorial
St Stephen's Hospital - Hervey Bay
St Vincent's Hospital
Sunnybank Private Hospital
The Sunshine Coast Private Hospital
The Townsville Hospital
Toowoomba Base Hospital
Wesley Hospital

AUSTRALIA: SOUTH AUSTRALIA

Ashford Hospital
Burnside War Memorial Hospital
Calvary Health Care
Flinders Medical Centre
Flinders Private Hospital
Lyell McEwin Health Service
Millicent and District Hospital and Health Service
Modbury Public Hospital
Mt Barker District Soldier's Memorial Hospital
Naracoorte Health Service
North Eastern Community Hospital
Royal Adelaide Hospital
St Andrews Hospital
The Queen Elizabeth Hospital
Western Hospital

AUSTRALIA: TASMANIA

Calvary Health Care Tasmania
Hobart Private Hospital
Launceston General Hospital
Mersey Community Hospital
North West Regional Hospital
Royal Hobart Hospital
St Vincent's Hospital Launceston

AUSTRALIA: VICTORIA

Alfred Hospital
Austin Hospital
Ballarat Health Services
Barwon Health Geelong Hospital
Beleura Private Hospital
Benalla and District Memorial Hospital
Bendigo Health Care Group
Berwick Hospital Inc.
Box Hill Hospital
Brighton Cabrini
Cabrini Hospital and Palliative Care Unit
Central Gippsland Health Service
Cliveden Hill Hospital
East Grampians Health Service
Echuca Regional Health
Epworth Eastern
Epworth Freemasons Hospital
Epworth Hospital
Frances Perry House
Frankston Hospital
John Fawkner Moreland Private Hospital
Knox Private Hospital
La Trobe Regional Hospital
Linacre Private Hospital
Malvern Private Hospital
Maryvale Private Hospital
Mayne Health - Geelong Private Hospital
Mildura Base Hospital
Mildura Private Hospital
Mitcham Private Hospital
Mount Waverley Private Hospital
North East Health Wangaratta & W Base Hospital
Northpark Private Hospital
Peninsula Private Hospital
Peter MacCallum Cancer Institute
Ringwood Private Hospital
Royal Melbourne Hospital
Royal Women's Hospital
Shepparton Private Hospital
Southern Health - Casey Hospital
Southern Health - Dandenong Hospital
Southern Health - Monash Medical Centre
St John of God Health Care (Bendigo)
St John of God Health Care (Geelong)
St John of God Health Care (North Ballarat)
St John of God Hospital, Berwick
St Vincent's Hospital
St Vincent's Private (East Melbourne)
St Vincent's Private (Fitzroy)
The Bays Hospital
The Northern Hospital
The Valley Private Hospital
Wangaratta Private Hospital
Warringal Private Hospital - Mayne Health
West Gippsland Hospital
Wodonga Regional Health Service

AUSTRALIA: WESTERN AUSTRALIA

Armadale Health Service
Bentley Hospital
Bethesda Hospital
Fiona Stanley Hospital
Fremantle Hospital
Glengarry Private Hospital
Hollywood Private Hospital
Joondalup Health Campus
Mount Hospital
Peel Health Campus
Royal Perth Hospital
Sir Charles Gairdner Hospital
St John of God Health Care (Murdoch)
St John of God Health Care (Subiaco)

NEW ZEALAND

Anglesea Procedure Centre
Ascot Integrated Hospital
Auckland Hospital
Bidwill Trust Hospital
Boulcott Hospital
Bowen Hospital
Braemar Hospital
Breast Associates
Chelsea Private Hospital
Dunedin Hospital
Gisborne Hospital
Hawkes Bay Hospital
Hutt Hospital
Manuka Street Hospital
Mercy Hospital (Auckland)
Mercy Hospital (Dunedin)
Middlemore Hospital
Nelson Hospital
North Shore Hospital
Palmerston North Hospital
Rotorua Hospital
Royston Hospital
Southern Cross Hospital (Hamilton East)
Southern Cross Hospital (Invercargill)
Southern Cross Hospital (New Plymouth)
Southern Cross Hospital (Palmerston North)
Southland Hospital
St Andrews Hospital
St Marks
Taranaki Base Hospital
Tauranga Hospital
Timaru Hospital
Waikato Hospital
Wakefield Hospital
Wellington Hospital
Whakatane Hospital
Whanganui Hospital
Whangarei Area Hospital

APPENDIX 3: DATA TABLES

TABLE 1: BQA DATA SUBMISSION OVER TIME (BY DIAGNOSIS DATE)

Year	Number of episodes	Number of surgeons participating
1998	1533	95
1999	3726	165
2000	7049	223
2001	7416	212
2002	7277	209
2003	6002	191
2004	5079	208
2005	6434	240
2006	9687	277
2007	10116	280
2008	11453	283
2009	12153	283
2010	13046	297
2011	13456	299
2012	13616	286
2013	14110	286
2014	14913	298
2015	15048	300
2016	15145	302
2017	11241	272

TABLE 2: PATIENT AGE DISTRIBUTION FOR EPISODES DIAGNOSED IN 2017

Cancer type	<40	40-49	50-59	60-69	70+	Total
Invasive	424	1521	2243	2718	2774	**9680**
In situ	44	238	466	462	309	**1519**
Cancer Type missing	3	8	11	7	13	**42**
Total	**471**	**1767**	**2720**	**3187**	**3096**	**11241**

TABLE 3: TREATMENT LOCATION FOR EPISODES DIAGNOSED IN 2017

Australia							New Zealand	Treatment Location missing	Total
NSW	NT	QLD	SA	TAS	VIC	WA			
2958 (26.3%)	75 (0.7%)	1882 (16.7%)	1126 (10.0%)	172 (1.5%)	2261 (20.1%)	786 (7.0%)	1962 (17.5%)	19 (0.2%)	11241 (100%)

TABLE 4: REFERRAL SOURCE FOR EPISODES DIAGNOSED IN 2017

Symptomatic	BreastScreen	Other	Referral Source missing	Total
5714 (50.8%)	4356 (38.8%)	1102 (9.8%)	69 (0.6%)	11241 (100%)

TABLE 5: REFERRAL SOURCE FOR INVASIVE TUMOURS, BY TUMOUR SIZE FOR EPISODES DIAGNOSED IN 2017

Referral Source	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm	Tumour Size missing	Total
Symptomatic	720	656	811	1326	655	890	197	5255
BreastScreen	954	850	604	576	218	231	53	3486
Other	270	186	137	136	52	80	34	895
Referral Source missing	4	2	3	6	0	4	25	44
Total	**1948**	**1694**	**1555**	**2044**	**925**	**1205**	**309**	**9680**

TABLE 6: REFERRAL SOURCE FOR IN SITU TUMOURS, BY TUMOUR SIZE FOR EPISODES DIAGNOSED IN 2017

Referral Source	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm	Tumour Size missing	Total
Symptomatic	97	54	40	66	45	127	13	**442**
BreastScreen	240	118	94	139	94	167	13	**865**
Other	57	30	22	36	21	38	3	**207**
Referral Source missing	0	1	0	1	1	1	1	**5**
Total	**394**	**203**	**156**	**242**	**161**	**333**	**30**	**1519**

TABLE 7: FINAL SURGERY FOR EPISODES DIAGNOSED IN 2017

Surgery category	Invasive	In situ	Cancer Type missing	Total
Breast conserving surgery only	5626	981	3	6610
Simple mastectomy	2953	331	3	3287
Mastectomy with reconstruction	644	170	0	814
Other surgery	109	24	0	133
No surgery	171	6	2	179
Surgery information missing	177	7	34	218
TOTAL	**9680**	**1519**	**42**	**11241**

TABLE 8: FINAL SURGERY, BY PATIENT AGE FOR EPISODES DIAGNOSED IN 2017

Surgery category	<40	40-49	50-59	60-69	70+	Total
Breast conserving surgery only	182	885	1728	2065	1750	**6610**
Simple mastectomy	158	505	629	865	1130	**3287**
Mastectomy with reconstruction	106	289	253	140	26	**814**
Other surgery	4	17	38	38	36	**133**
No surgery	6	17	22	32	102	**179**
Surgery information missing	15	54	50	47	52	**218**
Total	**456**	**1713**	**2670**	**3140**	**3044**	**11241**

TABLE 9: FINAL SURGERY, BY TUMOUR SIZE FOR EPISODES DIAGNOSED IN 2017

Surgery category	Invasive							
	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm	Tumour Size missing	Total
Breast conserving surgery only	1347	1229	1050	1250	432	290	28	**5626**
Simple mastectomy	378	336	389	653	409	771	17	**2953**
Mastectomy with reconstruction	170	96	90	97	68	117	6	**644**
Other	29	21	18	26	9	6	0	**109**
No surgery	23	7	6	11	4	17	103	**171**
Surgery information missing	1	5	2	7	3	4	**155**	**177**
Total	**1947**	**1689**	**1553**	**2037**	**922**	**1201**	**309**	**9680**

Surgery category	In situ							
	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm	Tumour Size missing	Total
Breast conserving surgery only	324	157	129	165	91	101	14	**981**
Simple mastectomy	52	31	19	51	37	137	4	**331**
Mastectomy with reconstruction	11	9	6	20	32	88	4	**170**
Other	5	6	1	6	1	5	0	**24**
No surgery	1		1				4	**6**
Surgery information missing	1					2	4	**7**
Total	**394**	**203**	**156**	**242**	**161**	**333**	**30**	**1519**

TABLE 10: FINAL SURGERY, BY TREATMENT LOCATION FOR EPISODES DIAGNOSED IN 2017

Surgery category	Australia							New Zealand	Treatment Location missing	Total
	NSW	NT	QLD	SA	TAS	VIC	WA			
Breast conserving surgery only	1773	37	1137	653	115	1518	392	977	8	**6610**
Simple mastectomy	756	28	610	347	39	482	299	721	5	**3287**
Mastectomy with reconstruction	213	4	87	41	14	204	77	173	1	**814**
Other	94		2		1	7	14	15		**133**
No surgery	34	1	26	31	2	21	4	55	5	**179**
Surgery information missing	88	5	21	20	54	1	29			**218**
Total	**2958**	**75**	**1883**	**1092**	**225**	**2233**	**815**	**1941**	**19**	**11241**

TABLE 11: FINAL SURGERY, BY REFERRAL SOURCE FOR EPISODES DIAGNOSED IN 2017

Surgery category	Symptomatic	BreastScreen	Other	Referral Source missing	Total
Breast conserving surgery only	2876	3149	554	31	6610
Simple mastectomy	2074	845	364	4	3287
Mastectomy with reconstruction	449	237	128		814
Other	56	60	17		133
No surgery	138	15	26		179
Surgery information missing	121	50	13	34	218
Total	**5714**	**4356**	**1102**	**69**	**11241**

TABLE 12: FURTHER SURGERY AFTER BREAST CONSERVING SURGERY FOR EPISODES DIAGNOSED IN 2017

Surgery category	Invasive	In situ
Mastectomy	569 (9.0%)	150 (13.0%)
Re-excision	697 (11.1%)	202 (17.5%)
Other surgery	101 (1.6%)	21 (1.8%)
No further surgery	4929 (78.3%)	779 (67.6%)
Total	**6296 (100.0%)**	**1152 (100.0%)**

TABLE 13: FURTHER SURGERY AFTER BREAST CONSERVING SURGERY, BY PATIENT AGE FOR EPISODES DIAGNOSED IN 2017

Surgery category	<40	40-49	50-59	60-69	70+
Mastectomy	46 (19.8%)	152 (14.4%)	183 (9.4%)	167 (7.4%)	171 (8.8%)
Re-excision	30 (12.9%)	137 (13.0%)	258 (13.2%)	287 (12.7%)	187 (9.6%)
Other surgery	4 (1.7%)	17 (1.6%)	37 (1.9%)	34 (1.5%)	30 (1.5%)
No further surgery	152 (65.5%)	748 (71.0%)	1470 (75.5%)	1778 (78.5%)	1563 (80.1%)
Total	**232 (100.0%)**	**1054 (100.0%)**	**1948 (100.0%)**	**2266 (100.0%)**	**1951 (100.0%)**

TABLE 14: FURTHER SURGERY AFTER BREAST CONSERVING SURGERY, BY TUMOUR SIZE FOR EPISODES DIAGNOSED IN 2017

Surgery category	Invasive					
	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm
Mastectomy	106 (7.2%)	71 (5.4%)	81 (7.1%)	98 (7.1%)	77 (14.9%)	134 (31.2%)
Re-excision	155 (10.5%)	148 (11.2%)	90 (7.8%)	177 (12.9%)	65 (12.6%)	58 (13.5%)
Other surgery	26 (1.8%)	20 (1.5%)	17 (1.5%)	25 (1.8%)	7 (1.4%)	6 (1.4%)
No further surgery	1192 (80.6%)	1081 (81.9%)	960 (83.6%)	1073 (78.2%)	367 (71.1%)	232 (54.0%)
Total	**1479 (100.0%)**	**1320 (100.0%)**	**1148 (100.0%)**	**1373 (100.0%)**	**516 (100.0%)**	**430 (100.0%)**

Surgery category	In situ					
	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm
Mastectomy	14 (4.1%)	8 (4.7%)	9 (6.5%)	15 (8.2%)	23 (20.0%)	79 (42.9%)
Re-excision	30 (8.7%)	29 (17.0%)	32 (23.0%)	43 (23.4%)	28 (24.3%)	36 (19.6%)
Other surgery	5 (1.5%)	6 (3.5%)	1 (0.7%)	4 (2.2%)	1 (0.9%)	4 (2.2%)
No further surgery	294 (85.7%)	128 (74.9%)	97 (69.8%)	122 (66.3%)	63 (54.8%)	65 (35.3%)
Total	**343 (100.0%)**	**171 (100.0%)**	**139 (100.0%)**	**184 (100.0%)**	**115 (100.0%)**	**184 (100.0%)**

TABLE 15: FURTHER SURGERY AFTER BREAST CONSERVING SURGERY, BY TREATMENT LOCATION FOR EPISODES DIAGNOSED IN 2017

Surgery category	AUSTRALIA							NEW ZEALAND
	NSW	NT	QLD	SA	TAS	VIC	WA	
Mastectomy	206 (10.0%)	8 (17.8%)	152 (11.8%)	79 (10.8%)	15 (11.5%)	127 (7.7%)	50 (11.0%)	81 (7.5%)
Re-excision	267 (12.9%)	7 (15.6%)	204 (15.8%)	45 (6.1%)	11 (8.4%)	191 (11.6%)	48 (10.5%)	126 (11.7%)
Other surgery	89 (4.3%)		1 (0.1%)		1 (0.8%)	2 (0.1%)	14 (3.1%)	15 (1.4%)
No further surgery	1506 (72.8%)	30 (66.7%)	933 (72.3%)	608 (83.1%)	104 (79.4%)	1327 (80.6%)	344 (75.4%)	851 (79.3%)
Total	**2068 (100.0%)**	**45 (100.0%)**	**1290 (100.0%)**	**732 (100.0%)**	**131 (99.2%)**	**1647 (100.0%)**	**456 (100.0%)**	**1073 (100.0%)**

TABLE 16: AXILLARY SURGERY FOR EPISODES DIAGNOSED IN 2017

Axillary surgery	Invasive	In situ
Sentinel Node Biopsy	6706 (71.6%)	553 (36.9%)
Axillary Node Dissection	2301 (24.6%)	37 (2.5%)
Unknown level of surgery	18 (0.2%)	1 (0.1%)
No Axillary Surgery	346 (3.7%)	907 (60.5%)
Total	**9371 (100.0%)**	**1498 (100.0%)**

TABLE 17: AXILLARY SURGERY, BY PATIENT AGE FOR EPISODES DIAGNOSED IN 2017

Axillary surgery	<40	40-49	50-59	60-69	70+
Sentinel Node Biopsy	254 (55.7%)	1073 (63.2%)	1784 (67.2%)	2204 (70.7%)	1949 (66.0%)
Axillary Node Dissection	171 (37.5%)	452 (26.6%)	528 (19.9%)	555 (17.8%)	634 (21.5%)
Unknown level of surgery	3 (0.7%)	5 (0.3%)	5 (0.2%)	1 (0.0%)	5 (0.2%)
No Axillary Surgery	28 (6.1%)	168 (10.0%)	336 (12.6%)	358 (11.6%)	363 (12.1%)
Total	**456 (100.0%)**	**1698 (100.1%)**	**2653 (99.9%)**	**3118 (100.1%)**	**2951 (99.8%)**

TABLE 18: AXILLARY SURGERY, BY TUMOUR SIZE FOR EPISODES DIAGNOSED IN 2017

Axillary Surgery	Invasive						In situ					
	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm	<10mm	10-14mm	15-19mm	20-29mm	30-39mm	40+mm
Sentinel Node Biopsy	1598 (82.3%)	1435 (85.1%)	1220 (78.9%)	1420 (69.9%)	509 (55.3%)	495 (41.8%)	84 (21.5%)	53 (26.2%)	37 (23.9%)	84 (34.9%)	67 (41.6%)	218 (66.3%)
Axillary Node Dissection	232 (11.9%)	191 (11.3%)	287 (18.6%)	542 (26.7%)	377 (41.0%)	650 (54.9%)	6 (1.5%)	4 (2.0%)	3 (1.9%)	5 (2.1%)	7 (4.3%)	11 (3.3%)
Unknown level of surgery	4 (0.2%)	2 (0.1%)	2 (0.1%)	4 (0.2%)	2 (0.2%)	4 (0.3%)						
No Axillary Surgery	108 (5.6%)	58 (3.4%)	38 (2.5%)	66 (3.2%)	32 (3.5%)	36 (3.0%)	300 (76.9%)	145 (71.8%)	115 (74.2%)	152 (63.1%)	87 (54.0%)	100 (30.4%)
Total	**1942 (100.0%)**	**1686 (100.0%)**	**1547 (100.0%)**	**2032 (100.0%)**	**920 (100.0%)**	**1185 (100.0%)**	**390 (100.0%)**	**202 (100.0%)**	**155 (100.0%)**	**241 (100.0%)**	**161 (100.0%)**	**329 (100.0%)**

TABLE 19: KEY PERFORMANCE INDICATORS - OVERALL COMPLIANCE FOR 2017

	Compliance	Threshold	Numerator	Denominator	Excluded
KPI 1	91%	85%	5029	5503	269
KPI 2	89%	85%	7100	7958	393
KPI 3	95%	90%	9025	9499	223
KPI 4	99%	90%	1479	1495	60
KPI 5	86%	85%	763	888	n/c
KPI 6	83%	90%	1926	2325	n/c

TABLE 20: KEY PERFORMANCE INDICATORS WITH QUALITY THRESHOLD AT 85% - OVERALL COMPLIANCE BY YEAR

KPI1				
Diagnosis year	**Compliance**	**Numerator**	**Denominator**	**Excluded**
2004	93.4%	2085	2232	309
2005	93.7%	2620	2797	265
2006	93.2%	4085	4384	360
2007	93.3%	4233	4537	421
2008	93.2%	4677	5017	383
2009	93.2%	4750	5094	371
2010	92.5%	5087	5498	468
2011	92.9%	5721	6158	268
2012	93.3%	5669	6076	239
2013	92.9%	5861	6310	228
2014	92.4%	6176	6686	390
2015	90.3%	6356	7040	409
2016	89.5%	6451	7206	698
2017	91.4%	5029	5503	269

KPI2				
Diagnosis year	**Compliance**	**Numerator**	**Denominator**	**Excluded**
2004	93.9%	2637	2809	710
2005	92.8%	3559	3835	671
2006	91.6%	5508	6010	870
2007	90.7%	5585	6159	991
2008	89.4%	6440	7202	932
2009	88.6%	6883	7768	992
2010	89.1%	7546	8472	997
2011	88.6%	8130	9172	726
2012	91.1%	8482	9306	716
2013	91.0%	8853	9729	642
2014	89.5%	9093	10159	812
2015	85.9%	8936	10407	600
2016	85.7%	9095	10612	490
2017	89.2%	7100	7958	393

KPI5			
Diagnosis year	**Compliance**	**Numerator**	**Denominator**
2004	84%	374	446
2005	85%	556	657
2006	87%	790	908
2007	86%	841	975
2008	85%	1001	1174
2009	85%	997	1176
2010	87%	1101	1271
2011	88%	1169	1328
2012	87%	1142	1314
2013	89%	1184	1337
2014	86%	1137	1316
2015	86%	1116	1304
2016	86%	1078	1255
2017	86%	763	888

TABLE 21: KEY PERFORMANCE INDICATORS WITH QUALITY THRESHOLD AT 90% - OVERALL COMPLIANCE BY YEAR

KPI3				
Diagnosis year	**Compliance**	**Numerator**	**Denominator**	**Excluded**
2004	95.1%	3885	4087	328
2005	94.8%	4969	5242	334
2006	95.0%	7415	7809	621
2007	94.8%	7893	8325	422
2008	95.1%	9168	9639	318
2009	93.7%	9600	10248	203
2010	94.0%	10458	11129	144
2011	94.0%	10916	11614	117
2012	93.8%	10962	11681	131
2013	93.4%	11181	11965	195
2014	94.6%	11799	12476	281
2015	94.5%	11871	12562	320
2016	95.3%	11764	12344	660
2017	95.0%	9025	9499	223

KPI4				
Diagnosis year	**Compliance**	**Numerator**	**Denominator**	**Excluded**
2004	90.2%	395	438	298
2005	93.8%	572	610	340
2006	95.2%	824	866	464
2007	95.6%	967	1011	419
2008	96.4%	1189	1233	345
2009	97.3%	1599	1643	149
2010	97.6%	1672	1713	107
2011	98.4%	1652	1679	68
2012	98.2%	1724	1755	64
2013	97.5%	1829	1875	99
2014	98.3%	2002	2037	159
2015	97.8%	2055	2101	111
2016	98.8%	1997	2021	162
2017	98.9%	1479	1495	60

KPI6			
Diagnosis year	**Compliance**	**Numerator**	**Denominator**
2004	90.2%	937	1039
2005	89.6%	1364	1522
2006	89.8%	2155	2399
2007	90.9%	2306	2538
2008	92.2%	2752	2984
2009	92.4%	2668	2887
2010	93.3%	2920	3131
2011	90.6%	2981	3292
2012	91.8%	3160	3441
2013	90.9%	3068	3376
2014	88.8%	2955	3328
2015	86.3%	2901	3362
2016	83.9%	2734	3260
2017	82.8%	1926	2325