Surgical Audit Guide

2021

Royal Australasian
College of Surgeons

The Royal Australasian College of Surgeons (RACS) is committed to leading surgical standards, professionalism and education across Australia and Aotearoa New Zealand. RACS has a proud history of facilitating the education and training of surgeons at all stages of their professional career, supporting surgeons and leading advocacy around standards, patient care and outcomes.

Surgical audit is a fundamental part of modern surgical practice; it is an education process that is aimed at measuring performance, reducing risk and improving patient outcomes. As a foundation category in the RACS Continuing Professional Development (CPD) Program, participation in comprehensive and robust audit attests to our commitment to continuous improvement and lifelong learning.

RACS provides Fellows, Specialist International Medical Graduates (SIMG) and Trainees with access to the Morbidity Audit Logbook Tool (MALT) and administers the Australian and New Zealand Audit of Surgical Mortality (ANZASM). We also recognise the expertise of specialty associations, societies and sub-specialty societies in establishing their audit programs, which are recognised in the RACS CPD Program.

The revised edition of the RACS Surgical Audit Guide focuses on providing surgeons with the information and tools needed to undertake quality surgical audit. We hope that you find this guide helpful in conducting audit throughout all stages of your surgical career.

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Committed to Indigenous health

Service | Integrity | Respect | Compassion | Collaboration

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Section 1
Surgical audit – an overview

What is surgical audit?

Surgical audit is an unbiased, systematic and critical analysis of the quality of surgical care, reviewed by peer(s) against explicit criteria or recognised standards.

The purpose of an audit is to examine whether what you think is happening really is, and whether audited outcomes meet existing standards.

What are the aims of a surgical audit?

A surgical audit aims to:

– identify ways of improving and maintaining the quality of care for patients

– assist in the continuing education of surgeons and

– help make the most of resources available for the provision of surgical services.

Why do a surgical audit?

Surgical audit is a quality improvement and educational activity grounded in everyday practice. Audit and feedback help participants analyse their performance and plan effective responses to improve surgical performance. Research shows that audit and feedback are effective educational strategies[1].

Improve patient care:

Participation in surgical audit has been shown to improve patient care[2] and patient outcomes[3].

Educational opportunities:

Surgical audit affords several educational opportunities for surgeons including:

– encouraging collaboration, modifying attitudes and approaches to clinical problems

– enhancing critical approaches and giving a rational basis to local changes in clinical practice

– encouraging learning about new technologies and procedures and auditing their introduction to provide justification

– indicating deficiencies in knowledge and skills, which leads to development of educational activities to address these and

– supporting the development of required standards of care, giving guidance on what is expected.

Systemic change:

Surgical audit also provides opportunity for systemic improvements - challenges and deficiencies identified in systems should lead hospital authorities to redress the issues.

What does a surgical audit involve?

A surgical audit involves:

– collection and measurement of clinical activities and outcomes

– analysis and comparison against standards, performance indicators, outcome parameters and

– a peer review process with a feedback mechanism to redress problems.

The key feature of audit is that it involves reviewing performance including outcomes and comparison with accepted standards. An audit should be a stimulus and source of material for learning and quality improvement.

How to conduct a surgical audit (including peer review) is outlined in more detail in Section 2 – the surgical audit and peer review process.

What is the difference between surgical audit, clinical review and research?

Surgical audit: Surgical audit is a comparison against recognised standards of surgical practice that supports improvement in the quality of care delivered to patients. Data is collected with defined criteria; comparisons are undertaken and recommendations for change are made and monitored.

Clinical review: A clinical review involves a detailed presentation of one or more cases, often with specific objectives and centred around a specific theme. These objectives may be educational and may focus on how a case could have been managed better (for example, the clinicopathological case presentation).

Some cases may be reviewed during an audit meeting because they are unusual, or lessons learned from decision-making or complications. Reviewing one or two cases should be seen as one aspect of audit, but not audit in itself.

Research: Unlike research, an audit does

not necessarily extend the knowledge base of surgery. An audit aims to improve the quality of care by critically analysing surgical practice.

Given the primary purpose of an audit of surgical practice is not to promote scientific enquiry, the requirements and constraints of research do not necessarily apply, although on occasion they may provide impetus for a related research project. Audit is about review of surgical performance with a view to improving quality of care within a team, hospital or practice.

Audit databases may be used to prove or disprove research hypotheses. The more data in the database, the more feasible it is to do this. It is therefore worth retaining audit data, but care must be taken in preserving privacy when building larger databases particularly if more than one hospital is involved. Local and other ethics committees may need to be consulted. (For more information, see Section 4-Legalities).

What makes an effective surgical audit?

Fostering a culture of audit

Surgical audit may be seen by some colleagues as unnecessary or threatening. It is essential that audit is undertaken in an atmosphere that highlights educational aspects, is regarded as non-threatening or 'safe', and is carried out in a culture of 'no blame'. This atmosphere enables open discussion of findings, self-reflection and participants will be able to discuss their feelings concerning audit reviews.

Creating this environment depends on physical and social aspects and the culture of the practice or hospital in which you work. Auditing clinical outcomes assures everyone that they are achieving high quality results, and this is now a necessary risk management tool in clinical practice.

Allocate time and resources

Audit should not be allowed to become a burden, as this will make participation difficult. Where possible, information required for auditing should be integrated with the routine recording of clinical data and considered as part of normal clinical practice. As technology and data systems get more sophisticated, administrative burden should reduce and the need for repetitious entry of data kept to a minimum.

Getting help with data collection is important. Resources should be made available by your hospital, as clinical audit and peer review are requirements for maintaining CPD and credentialing.

Oversee and verify data collection

It is important to keep it simple and only collect the essential data. Responsibility for data collection and its accuracy should be allocated and resourced appropriately. A method of data validation should be included to allow regular review of data integrity. The data should be accurate and complete, with clinical details provided by clinicians. Review the data regularly and frequently and troubleshoot immediately.

Productive peer review

Audit is only effective if we 'close the feedback loop' by following through on findings and outcomes. Good follow up and implementation of change requires the surgeons to work closely with management and putting in place systems for quality improvement and risk management. Hospital administrators may need reminding of the safety and risk management aspects of recommendations arising from audit activities and morbidity and mortality meetings.

What types of surgical audit can I participate in?

A surgical audit may include a personal audit (total/practice/selected), a group/hospital/specialty au dit or a clinical registry with peer feedback.

When considering your audit participation, it is important that your audit activity encompasses your scope of practice, including those procedures that may be performed infrequently.

Total practice or workload audit: This is an audit that covers all the surgical operations performed.

While total practice audit is a goal, it is recognised that in some circumstances it is unrealistic. A total practice audit enables you to identify patterns and trends in your practice by observing changes in throughput (caseload), procedures performed and outcomes. One period needs to be compared with another and needs to be long enough to accrue sufficient cases. A useful general tip is to start small, then gradually increase the scope of your audit.

Selected audit from surgical practice: This is an audit that covers all patients who undergo a selected procedure, or an audit that covers all procedures conducted within a selected timeframe.

Clinical unit audit: This is an audit conducted by a clinical unit which includes audit data from all operations performed by all surgeons in that unit.

Group or specialty audit: This is an audit conducted by or under the auspices of a group or specialty society (for example, BreastSurgANZ, Australasian Vascular Audit (AVA), New Zealand Joint Registry, AOA National Joint Registry). A comprehensive list of surgical specialty audits available in Australia and Aotearoa New Zealand can be found on the RACS website.

Hospital performance indicator audit: This collects data on the process or outcome indicators recommended by departments of health for measuring hospital quality of care. For example, what is the wound infection rate after large bowel surgery – emergency/elective procedure, length of stay, antibiotic prophylaxis, unplanned readmission rates, and so on.

Registries: Many surgeons contribute data to clinical registries, which support the establishment of benchmarks and variations in patient outcomes. A well-constructed clinical registry that incorporates a regular peer feedback loop and outlier management process can serve as a valid audit activity.

Section 2
The surgical audit and peer review process

The surgical audit cycle

To ensure the success of an audit, planning and preparation are essential and may vary depending on the type of audit being considered. Talking with key participants, consideration of an audit topic and how the audit will be conducted across a hospital/practice/multicentre are all important factors for consideration.

Surgical audit is typically based on a five-step cycle.

– Step 1: Determine scope
– Step 2: Define standards
– Step 3: Collect data
– Step 4: Present and interpret results (with peer review)
– Step 5: Make changes and monitor progress

SURGICAL AUDIT CYCLE

Make change /monitor progress — Determine scope — Select standards — Collect data — Present results/ peer review
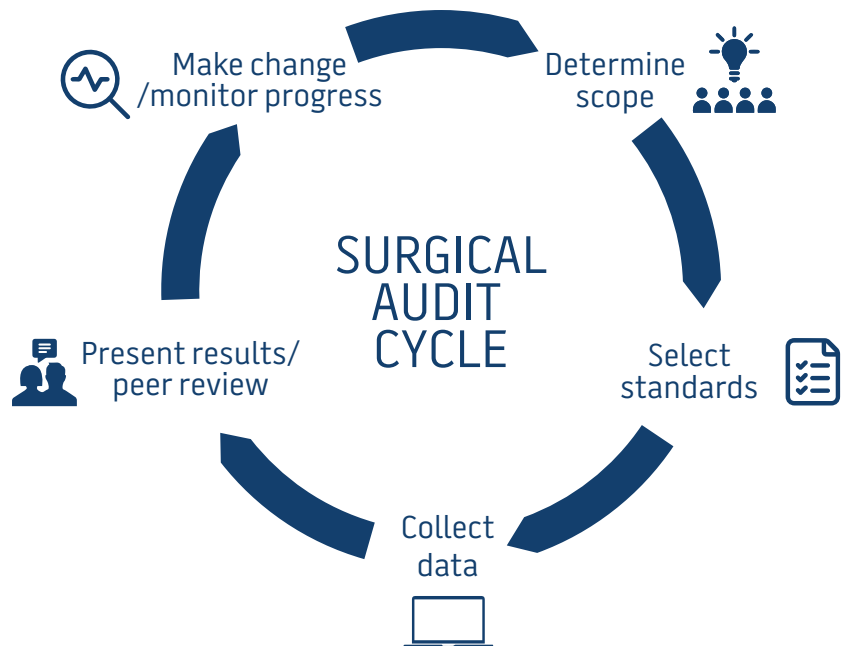
Step 1: Determine scope

Before starting your audit, it is important that the scope (or topic) is clearly defined. Identifying a problem(s) can help to assist in determining the scope and the type of audit required. It will also reduce the possibility that insufficient or inappropriate data is collected.

To ensure there is a meaningful numerator or denominator, it is important to have a sufficient volume of cases. Where a surgeon or unit perform a small number of cases each year for a specific operation, consideration should be given to auditing these procedures against published literature or through a specialty group (where possible) or peers/network who perform a higher volume of the procedure.

Common areas in the scope of an audit include:

– thirty-day mortality
– length of hospital stay
– unplanned readmission
– unplanned return to theatre
– positive and negative outcomes
– operation-specific complications
– process of care, such as pre-operative care
– time on waiting list
– numbers waiting for outpatient appointment
– use of investigations
– patient satisfaction (patient reported outcome measures or PROMs)
– timing and use of prophylactic antibiotics.

Audits often focus on adverse events, reflecting an underlying assumption that adverse events are a consequence of poor quality of clinical care. A review of adverse events should include an aim to identify system errors to enable improvements in patient care. Audit of the outcome of a disease process for surgical intervention may require a measure of the quality of life, activities of daily living or objective assessment of the symptoms the operation was intended to reduce.

An audit should also recognise what is done well and the achievements of a surgeon/unit/service.

Step 2: Define standards

Once the scope of the audit has been determined, the next step is to decide what standards will be used. Consideration should be given to the relevant information you need. You may want to undertake one or more methods to do this, such as the use of evidence-based research and guidelines; adaptation of existing local guidelines for local relevance, or you may want to look to your specialty group to define standards.

Clearly describe any existing standards or the process you will use to develop your standards. When reviewing existing standards or developing your own, remember to consider whether the standards are measurable, specific and realistic.

— Will you be able to collect information that can be compared with the standards?

— Are you as clear as possible about what constitutes good practice in your chosen area?

— Can you foresee any reason that you cannot achieve these standards?

Current standards?

The Australian Commission on Safety and Quality in Health Care has developed a number of clinical care standards that are relevant to surgeons (i.e. hip fracture, colonoscopy). In Aotearoa New Zealand, the Ministry of Health Manatū Hauora publishes several clinical care standards that may be a valuable reference source.

Your specialty group may also be able to provide support on appropriate

Where can I get more information on existing standards?

The Australian Commission on Safety and Quality in Health Care has developed a number of clinical care standards that are relevant to surgeons (i.e. hip fracture, colonoscopy). In Aotearoa New Zealand, the Ministry of Health Manatū Hauora publishes several clinical care standards that may be a valuable reference source.

Your specialty group may also be able to provide support on appropriate standards – more information can be found on the RACS website.

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Clinical indicators

Clinical indicators are measures of elements of clinical care which may, when assessed over time, provide a method of assessing the quality and safety of care at a system level[4]. Clinical indicators should be reviewed regularly to ensure:

— they are relevant for clinicians

— they continue to reflect today's healthcare environment

— there is consensus on collection and reporting requirements and

— they are regarded as useful for quality improvement.

(Australasian Clinical Indicator Report 2008-2011 - Understanding clinical practice toolkit)

A well-designed indicator should screen, flag or draw attention to a specific clinical issue. Usually rate-based indicators identify the rate of occurrence of an event. Indicators do not provide definitive answers; rather they are designed to indicate potential problems that might need addressing, usually demonstrated by statistical outliers or variations within

data results. They are used to assess, compare and determine the potential to improve care. Indicators are, therefore, tools to assist in assessing whether or not a standard in patient care is being met.

The best indicators are those that rely on independent, unbiased collection, and represent true, reliable data that clinicians have confidence in, and are willing to reflect on. The indicators may not just be the process or outcome indicators listed above but might also include those targeted at times and hospital-initiated postponements. These are all structural measures of access or efficiency.

Adverse events and complications

Collection of data on adverse events and complications is central to most audits. An adverse event is not the same as a complication and although some complications are adverse events, not all are. It is the concept of 'unintentional harm' that differentiates a complication from an adverse event. Some complications are simply unavoidable aspects of treatment, at least at a certain rate of occurrence.

Adverse events

An adverse event can be defined as unintentional harm arising from an episode of healthcare and not due to the disease process itself. Major adverse events, such as bile duct injury, anastomotic leakage, and unplanned re-operations should also be included and presented for peer review. However, there will be many minor adverse events such as pneumonia or urinary tract infection (UTI) that should be presented but would not normally require discussion at an audit meeting.

Adverse outcomes may be to some extent predictable but at a certain accepted rate which should be within agreed standards. They may arise because of technical error, patient comorbidity, progression of pathology, or reflect an accepted complication rate for a particular condition or operation. The various adverse outcomes that might be reported would include some of those listed below.

An alternative is to use some form of Limited Adverse Occurrence Screening (LAOS)[5] based on identifying and reviewing cases that suffer from one or more of the adverse events listed below. Adverse events worth considering are:

- death in a surgical patient
- unplanned readmission within 28 days
- unplanned readmission to ICU from ward
- unplanned reoperation
- unplanned blood transfusion
- transfer for more complex care
- complication (Grade 3 or 4)
- complication prolonging anticipated hospital stay by more than 7 days
- inadvertent perforation of a viscus
- serious drug reaction or interaction
- medication error
- cardiac or respiratory arrest
- Medical Emergency Team (MET) call
- fall
- pressure sores
- reportable infection and
- theatre booking cancelled on day of surgery.

In many hospitals some of the above listed adverse events are already reported and there should be no need to recollect the data. The challenge for those responsible for preparing an audit is to ensure that reportable adverse events such as nosocomial infections, falls, pressure sores and medication errors are known to the surgical team and where appropriate discussed.

Complications

A complication can be defined as any deviation from the normal postoperative course[6].

The Clavien-Dindo classification[7] is widely used to grade complications according to a five-point scale as outlined in Table 1.

The suffix 'd' can be added to the grade of complication, representing disability, if the data you require and that it is complete.

Grade	Definition
Grade I	Any deviation from the normal post-operative course not requiring surgical, endoscopic or radiological intervention. This includes the need for certain drugs (e.g. antiemetics, antipyretics, analgesics, diuretics and electrolytes), treatment with physiotherapy and wound infections that are opened at the bedside.
Grade II	Complications requiring drug treatments other than those allowed for Grade I complications; this includes blood transfusion and total parenteral nutrition (TPN).
Grade III	Complications requiring surgical, endoscopic or radiological intervention. – Grade IIIa - intervention not under general anaesthetic – Grade IIIb - intervention under general anaesthetic
Grade IV	Life-threatening complications; this includes CNS complications (e.g. brain haemorrhage, ischaemic stroke, subarachnoid haemorrhage) which require intensive care, but excludes transient ischaemic attacks (TIAs). – Grade IVa - single-organ dysfunction (including dialysis) – Grade IVb - multi-organ dysfunction
Grade V	Death of patient

Table 1 (Source: Grading of surgical complications)

Where can I go for more information about adverse events and complications?

The Assess Surgery website contains a number of resources on the Clavien-Dindo classification, including an Excel spreadsheet template.

The Australian Safety and Quality in Health Care Commission has an extension resource library on hospital acquired complications and a Hospital Acquired Complications Information Kit containing fact sheets on a number of more common complications.

In Aotearoa New Zealand, the Health and Safety Commission provides publications and resources that support clinicians.

Step 3: Collect data

With advances in technology and information systems, paper-based collection of audit data is largely redundant. Online systems are readily available, either as a full audit or as a logbook tool. These have significant advantages over a paper-based approach including improved data security, reduced data entry, 'big data' integration and real-time reporting.

If you are unable to access an online audit system through your practice, hospital or specialty group, the Mortality Audit Logbook Tool (MALT) is available free of charge to Trainees, Specialist International Medical Graduates (SIMGs) and Fellows of RACS,

and across the nine surgical specialties. The tool includes the opportunity for a facilitated peer review for those surgeons who are isolated or unable to coordinate a review themselves.

Data collection and patient consent

In some Australian jurisdictions the collection of patient data for audit has been included on patient consent forms. In Aotearoa New Zealand, each of the District Health Boards (DHB) will have their own patient consent forms, which may or may not reference audit data.

The inclusion of audit data during the consent process adds greater transparency around the use of patient information. While it is not mandatory or consistently applied at present, it is likely to become more common and consideration should be given to including this on your patient consent forms.

See Section 4 Legalities for more information on audit, privacy and ethical considerations.

Maximising data collection

The accuracy and timeliness of data collection will have an impact on the effectiveness of your audit as a quality assurance activity.

– Will you collect/ input the data yourself or review it before entry? It is wise to consider the accuracy of data. For example, who has the final say in an accurate diagnosis or grade of complication?

– Can the data required be collected at least in part by downloading from a hospital information system? Can you rely on the accuracy of downloaded data? Accuracy will depend on who was responsible for entering it.

Before going on, pause to think: How will the data look, how will you compare it to any standards and how will you analyse the results of this comparison?

– Is the data to be collected relevant to the objective(s) of the surgical audit?

– Do you need to modify, expand or limit the objective(s)?

– Will the data you collect adequately assess how well the standards have been met?

– Do you need to modify the standards?

– Do you need to modify the data collection methods?

Step 4: Present and interpret results

Audit is about continuously improving by learning from experience and making changes, not just collecting data. It is the changes you implement that effect improvement rather than the data collection itself, which are ultimately the most rewarding.

What is 'peer review'?

Peer review involves an evaluation of one's work by one's peers. Peers are other surgeons with comparable training and experience. It can often also be helpful to include other non-surgical members of the team in the review group, for example, surgical trainees or senior nursing staff.

What makes an effective peer review?

The Australian Commission on Safety and Quality in Health Care outlines the following principles for effective peer review.

1. The governing body of a health service organisation and its managers have a responsibility to support effective peer review.

2. Health practitioners have a professional responsibility to engage in peer review regularly and actively.

3. Peer review should produce valid and reliable information.

4. Processes for peer review must be transparent, fair and equitable, and legally and ethically robust.

5. The outcomes of peer review should be applied ultimately to improve patient care.

(Source: Review by Peers – A guide for professional, clinical and administrative processes (Australian Commission on Safety and Quality in Health Care)

Creating a safe environment for peer review

Peer review should be conducted in an atmosphere of confidentiality, of trust and teamwork, and be an evolving process. Confidentiality of the information used for and resulting from the audit is essential, both from the point of view of the rights of patients and of the individual surgeon. Those surgeons present should be reassured that the discussion is a confidential professional peer review. Grand rounds as the name suggests are hardly a confidential peer review, but cases should be presented as an educational exercise. They are good opportunities to learn from one or more cases but do not replace formal surgical audit meetings.

A peer review meeting should allow a frank, non-confrontational discussion between colleagues. This discussion should focus on perceived problems and successes, resulting in a practical plan for positive change if needed. While rights, responsibilities, apportionment of blame, punishment, compensation and access to justice can be valid processes, they should not be confused or interfere with the processes of education, risk management and quality assurance. Peer review is not an opportunity to blame or brag.

Types of surgical practice and peer review

As a general guide, there are three types of surgical practice for the purposes of peer review:

Surgeons working together with other specialists in a unit, a hospital or other group.	A unit should review the work of all its surgeons at least once every six months. Some units may choose to do this on a more regular basis, but this would be determined by individual circumstances.
Surgeons working as individuals, or who head a single specialist team in a hospital with other specialists also providing surgery in the same institution, but where there is no grouping of specialists into a unit.	Peer review involves other surgeons from the same or similar craft group and should take place for each surgeon or surgical team at least once every six months.
Surgeons solely responsible for a hospital or region who have no surgical peers of the same grade in their institution.	Such surgeons may need to organise peer review by an occasional visit to or from regionally based colleagues or by teleconference if meeting together is not practicable. A registrar is not a peer of a consultant, however, registrars should contribute to audit meetings.

Key features of a peer review meeting

The following are key aspects of a peer review meeting:

- All surgeons should be members of an active peer review group of no fewer than three surgeons.
- A conducive setting should be chosen considering privacy, coffee, minimal interruptions and data projection facilities.
- The role of Chair should rotate. It is most important to create equity and avoid bias, real or apparent. An alternative is to appoint an independent chair such as a medical director or a recently retired surgeon.
- Meetings should be scheduled with sufficient notice to give relevant staff the opportunity to attend.
- A record of attendance at peer review meetings should be kept to demonstrate satisfactory attendance.
- Peer review of an individual surgeon's work should occur not less than six-monthly. For some units/departments a monthly audit may be sufficient, while for others less frequent review (for example, quarterly) may be appropriate. Comprehensive analysis benefits the identification of trends and better informs changes to be made.
- Peer review should include both individual cases and examination of trends in practice over extended time periods. Outcome reviews can also include comparative assessments, focused reviews of specific problems or procedures, and follow up of recent changes.
- The chair of the session should ensure all serious events are considered for appropriate review.
- Efforts should be made to identify quality issues (particularly system deficiencies) and appropriate actions to be taken. These issues should be brought to the attention of the hospital medical and administrative hierarchy and/or the specialty group executive.
- At the conclusion of the session, any plans or recommendations (if any) should be recorded and a person nominated to action. This may be a manager, hospital administrator, individual surgeon, resident or registrar.
- Importantly, all plans or recommendations should be followed up. The final outcomes column should be completed in a timely manner.
- Ideally, hospitals assist surgeons with the process of conducting an audit.
- Surgical audit is a mandatory requirement for hospitals to maintain accreditation with organisation. At the very least, it is recommended that the hospital provides the list of procedures to assist with the audit and peer review process.

In Aotearoa New Zealand, the reporting of key findings of an audit may be influenced by whether it is a protected activity under the Medical Practitioners Act 1995, Part VI[8]. Similarly, in Australia an audit may be protected by qualified privilege legislation under the *Health Insurance Act 1973* (Cth)[9]. If you are unsure whether your audit is a protected activity, you should contact the administrator or organisation conducting the audit (Also see Section 4 Legalities for more information).

Educational opportunities and peer review

Peer review is a learning exercise. An outcome of peer review may be a well-planned educational workshop (or a grand round to educate a wider audience), that takes account of the results of the audit. This can be highly effective in this step of the audit cycle. In fact, there is evidence to suggest that feedback of audit data without subsequent relevant education does not change performance[10].

Where can I go for more information about peer review meetings?

Toward Clinical Excellence – An Introduction to Clinical Audit, Peer Review and Other Clinical Improvement Activities (Ministry of Health, New Zealand)

Review by Peers – A guide for professional, clinical and administrative processes (Australian Commission on Safety and Quality in Health Care)

Conducting a Morbidity and Mortality meeting

A Morbidity and Mortality (M&M) meeting is a regular conference held by medical services in hospitals which involves a peer review discussion of issues that occurred during the care of patients, resulting in a complication or death. The primary purpose of an M&M meeting is to allow learning from issues by modifying judgment and clinical decision making, to prevent repetition of these events and to improve patient care[11].

	Bronze	Silver	Gold
Format			
Structured case identification	✓	✓	✓
Consistent, structured meeting format	✓	✓	✓
Regular meeting occurrence and duration	✓	✓	✓
Written terms of reference	✓	✓	✓
Prior dissemination of meeting agenda and cases to be presented		✓	✓
Inter-profession and multidisciplinary involvement		✓	✓
Appointment of specific M&M meeting personnel to manage administration and completeness of data		✓	✓
Self-nomination of cases			✓
Conduct			
Consistent, structured case presentation	✓	✓	✓
Safe, blame-free environment	✓	✓	✓
Systems-focus	✓	✓	✓
Review of close-calls as well as formal M&M cases			✓
Outcomes			
Assigning a timeline (where necessary) to recommendations for improvement	✓	✓	✓
Assigning an individual/group to carry out recommendations for improvement		✓	✓
Detailed record keeping		✓	✓
Audit of M&M meeting procedures			✓
Follow-up on implementation of recommendations for improvement			✓
Ensuring recommendations for individual/systems improvement are made for each case			✓

Table 2: Guideline for conducting effective Morbidity and Mortality meetings

RACS has developed a Guideline for Conducting Effective Morbidity and Mortality meetings, with a matrix that provides guidance on what constitutes a Bronze, Silver, and Gold standard meeting as shown in Table 2.

A meeting that adheres to a 'bronze' standard is the minimum you should aim for to ensure an M&M meeting is effective and meeting CPD standards. Ideally you should be taking active steps to conduct meetings that are of a silver or gold standard.

Where can I go for more information about Morbidity and Mortality meetings?

Guideline reference document for conducting effective Morbidity and Mortality meetings for improved patient care – Royal Australasian College of Surgeons

Guidelines for Conducting and Reporting Morbidity and Mortality/ Clinical Review Meetings (Clinical Excellence Commission – New South Wales)

Quality, safety and service improvement hub (Victorian Government)

Morbidity and Mortality Meetings – A Guide to Good Practice (Royal College of Surgeons – England)

Draft Practice Guide for Mortality and Morbidity Meetings (Health Improvement Scotland)

Step 5: Make changes and monitor progress

The next step is to implement any changes that are recommended. Implementation involves not just making changes but ensuring that everyone affected is educated/informed as to the changes being made and why.

The impact/effects of the changes made then needs follow up action. For example, did they achieve the desired outcome; have expectations been met? If you are not carrying out a continuous total practice audit, you will need to make some decisions about how this is monitored.

Comparing six to twelve-month time periods may allow improvement resulting from changes in practice to be demonstrated .

Settings for surgical audit

Surgical audit occurs across a range of practice settings - including public and private practice - which may impact how you participate in audit activities.

Surgical audit in public practice

Most surgical units in public practice run regular M&M meetings, as well as case reviews of adverse outcomes. While these are a form of audit of practice, to support effective surgical audit it is important that they are conducted in a structured manner with an aim to improve patient care.

Most hospitals in Australia collect clinical indicators data for Australian Council of Healthcare Standards (ACHS) purposes. This should be available from medical records/administration as a basis for surgical audit.

Most, if not all, hospitals have online information systems which lend themselves to the process of data collection. Combining data collection with group and focused audits, it should be possible for large hospitals and regional groups to conduct appropriate audits of surgical performance. In this way they can assure themselves that they are meeting standards and ways of improving patient outcomes will be highlighted.

In larger jurisdictions, resources may be available to join larger surgical groups in conducting prospective data collection using internationally validated projects such as National Surgical Quality Improvement Program (NSQIP).

Surgical audit in private practice

For surgeons in private practice who are unable to access surgical audit and peer review within their practice, it is recommended they join a specialty or sub-specialty group audit or a RACS endorsed audit program.

Surgical audit for rural and isolated surgeons

Rural and isolated surgeons and those working in small hospitals should establish geographic or specialty-based links with other surgeons to facilitate peer review. Where surgeons cannot meet in person, video conferencing provides a valuable alternative. In areas where video conferencing may not be possible due to poor internet connection, teleconferencing should be considered.

It is also possible to organise an anonymous comparison of performance outcomes of surgeons in a region, country or specialty. However, there are issues associated with this approach which need to be considered, namely differences of case-mix, co-morbidity and type and size of practice.

Audit in non-operative practice

Participation in audit is a requirement for medical practitioners registered to practice in Australia or Aotearoa New Zealand, regardless of whether a surgeon is in operative practice. For those in non-operative practice or who are no longer seeing patients, audit activities available that support quality improvement may include:

Clinical consulting practice – Surgeons who continue to see patients in a clinical capacity should continue to participate in a clinical audit of their practice.

Report writing – Surgeons who are practising in a report-writing capacity can elect to have a sample of their work assessed by a peer. The minimum

number of reports submitted for the purposes of Continuing Professional Development (CPD) is three per annum and these should be de-identified before being submitted for review. The peer performing the review should provide constructive feedback and clear recommendations for improvement, where required.

The RACS Medico-Legal Section has an established criterion for assessing the quality of a report and can help to facilitate a review.

Volunteer – If you are working overseas in a volunteer capacity, you should continue to participate in surgical audit and peer review within that setting. If this is not available to you, you may wish to use an audit tool such as MALT.

Educator/Teaching – For those surgeons working in education – including lecturing, teaching or examinations – student evaluations offer a valuable means of assessing performance.

Section 3 Reporting

A well-constructed surgical audit report can aid the peer review process and ensure a peer review meeting is focussed on the key issues. The report should identify all the cases performed for the area of interest and be able to sub-classify the cases according to pre-agreed criteria.

With the transition away from paper-based data collection to electronic data systems, sophisticated and real time reporting is readily available in most surgical audit programs and tools.

Minimum reporting requirements

At a minimum, binary recording that is yes/no, pass/fail of key performance indicators should identify:

- unplanned reoperations
- unplanned readmissions
- unplanned ICU admissions/ readmissions
- prolonged LOS (varies according to procedure)
- unanticipated blood transfusion
- other procedure specific Indicators
- calculation of key performance indicators from numerator/ denominator and
- ability to generate CUSUM.

CUSUM

CUSUM[12] stands for Cumulative Sum and involves a time plot of attempts against an agreed binary target. It measures variation in small samples. It allows for early detection of small aberrations, natural variations and procedural performance trends.

Cumulative failure means that each failure is recorded as an upstroke on a cumulative failure chart where the horizontal axis is number of attempts (procedures) and the vertical axis records failures. A success is recorded as a horizontal line.

Whenever a craft group can agree on the definition of an outcome and classify the case into a Yes/No or successful/unsuccessful, then such a binary definition can be used to generate a Cumulative failure or CUSUM chart. Providing there are agreed benchmarks/performance markers, the plot can be compared with what a group of surgeons thinks is acceptable or unacceptable performance.

Risk adjustment reports

Audit reports should be interpreted with appropriate risk adjustment and where possible these should be sought from the related craft group. Risk adjustment factors to consider include:

- operation urgency (emergency/ elective)
- age of patient
- ASA
- patient co-morbidities and
- stage of disease.

Specialty specific risk adjustment tools are available and include:

- Cardiac Surgery - AUSScore[13]
- General Surgery - POSSUM[14] and
- Gastrointestinal Surgery – E-PASS[15] .

Comorbidity scoring systems

There are two major comorbidity scoring systems, based on papers from Elixhauser and Charlson.

The Elixhauser Comorbidity Index (ECI) is a method of categorizing comorbidities of patients based on the International Classification of Diseases (ICD) diagnosis codes found in administrative data, such as hospital abstracts data. It apportions a score of 1 to every comorbidity from a list of 35[16].

The Charlson Comorbidity Index (CCI) assesses comorbidity level by taking into account both the number and severity of 19 pre-defined comorbid conditions. It provides a weighted score of a client's comorbidities which can be used to predict short term and long-term outcomes such as function, hospital length of stay and mortality rates[17].

Where can I get more help with audit reports?

CUSUM chart – Excel template

Online Elixhauser Comorbidity Index calculator

Charlson Comorbidity Index calculator

Further reading

Austin SR, Wong Y-N, Uzzo RG, Beck JR, Egleston BL. Why summary comorbidity measures such as the Charlson Comorbidity Index and Elixhauser Score work, Medical Care.2015; 53(9): e65-e72 doi: 10.1097/MLR.0b013e318297429c

Section 4
Legalities

Privacy

As part of the surgical audit process, participants may need to collect, use, access, hold or disclose the personal information of individuals. Personal information is defined as follows:

Australia: "personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable: (a) whether the information or opinion is true or not; and (b) whether the information or opinion is recorded in a material form or not" (Section 6 of the *Privacy Act 1988* (Cth))

Aotearoa New Zealand: "personal information means information about an identifiable individual; and includes information relating to a death that is maintained by the Registrar-General pursuant to the Births, Deaths, and Marriages Registration Act 1995, or any former Act" (Section 7, *Privacy Act 2020* (NZ) repeals and replaces the *Privacy Act 1993* (NZ))

Surgical audits should be conducted using as little personal information as possible, while still maintaining the efficacy of the surgical audit. This may involve removing or redacting personal information from documents or using identification numbers rather than a name or other patient identifiers. (It should be noted that patient identification numbers are also personal information.)

Your organisation's privacy policy

All organisations (both public and private entities) are required to have a privacy policy or documentation which describes how an organisation collects, holds, uses and discloses personal information. Anyone who is participating in a surgical audit or is looking to establish a surgical audit should carefully review their organisation's privacy documentation. This documentation should inform you how personal information should be collected, held, used or disclosed and what to do should an issue arise relating to an individual's personal information.

Relevant legislation and guidelines

In Australia, privacy and personal information is governed by the *Privacy Act 1988* (Cth) that is central to protection of information in the activities of Federal agencies and of certain organisations in the private sector. In the Commonwealth public sector, all agencies are subject to the Australian Privacy Principles (APPs). Additionally, there are specific Australian State and Territory Health Records and Information Protections Acts that apply. In Aotearoa New Zealand, the *Privacy Act 2020* (NZ) replaced the *Privacy Act 1993* (NZ) on 1st December 2020.

The Australian Privacy Principles (APPs) are the cornerstone of the privacy protection framework in the *Privacy Act 1988* (Cth) whereas the Privacy Principles (PP) are at the heart of the *Privacy Act 2020* (NZ) and they reflect internationally accepted standards for good personal information handling. Both the APPs (Australia) and the PPs (NZ) relate to the collection, use and disclosure of personal information, an organisation or agency's governance and accountability, integrity and correction of personal information and the rights of individuals to access their personal information.

Audit participants are encouraged to review the materials produced by the Information/Privacy Commissioners in each jurisdiction helpful in explaining the rights and obligations which apply in relation to privacy, personal information and health records. Below are links to each Information Commissioner's website and some relevant materials including information about relevant notifiable data breach schemes in Australia and Aotearoa New Zealand.

Australia

https://www.oaic.gov.au/

https://www.oaic.gov.au/privacy/privacy-for-health-service-providers/

https://www.oaic.gov.au/privacy/health-information/handling-health-information/

https://www.oaic.gov.au/privacy/notifiable-data-breaches/

Aotearoa New Zealand

https://www.privacy.org.nz/

https://www.privacy.org.nz/news-and-publications/books-and-articles/

https://www.privacy.org.nz/privacy-act-2020/resources/

Ethics

Given surgical audit is a quality assurance activity and not research, ethics approval is generally not

required. If you are unsure if the audit activity you are participating in requires ethics approval, you should speak with your institution, district health board or hospital area network for advice.

Australia:

In Australia, the National Health and Medical Research Council (NHMRC) (Australia) provides guidance on ethical considerations in quality assurance and evaluation activities. The National Statement on Ethical Conduct in Human Research states research that involves no more than low risk research (including QA and negligible risk research) must be reviewed by people who are familiar with the national statement and who have an understanding of ethical issues that can arise. Quality assurance and evaluation activities must give due regard to privacy regulations (laws) and be reviewed to ensure such activity does not require Human Research Ethics Committee (HREC) approval (see 5.1)[18].

Aotearoa New Zealand:

The Health Research Council of New Zealand provides guidance on activities that require ethics approval, including activities involving Māori health or Pacific health research. The Health and Disability Ethics Committees states that audits and related activities are exempt from the main criteria.

Qualified privilege (Australia)

The Commonwealth Qualified Privilege Scheme (QP) aims to encourage participation in certain quality assurance activities by providing

Where can I get more information about QP in Australia?

The Australian Government Department of Health provides information about the scheme, including how to apply.

protection for participants. It protects and prohibits the disclosure of information which may identify individuals; the information becomes known *solely* as a result of the declared assurance activity. Administrators of quality assurance activities such as surgical audits can apply for their quality assurance activity to be included in the QP Scheme.

If the surgical audit you are participating in has been accepted as part of the QP Scheme, the following protections may be available.

- Certain information which is generated from quality assurance activities (such as findings, evidence or opinions) or used as part of the surgical audit may be prohibited from disclosure.
- Individuals participating in the surgical audit may be protected from civil liability in relation to their participation in the surgical audit.

It is important to note that not all clinical or surgical audits will be covered by the QP Scheme. Your hospital or institution administrators or specialty society will be able to advise whether the surgical audit you are participating in is covered by the QP Scheme. The Australian and New Zealand Audit of Surgical Mortality (ANZASM) and RACS'

Mortality Audit Logbook Tool (MALT) both hold qualified privilege coverage.

Quality assurance activities (Aotearoa New Zealand)

Similar protections for surgical audits are available in Aotearoa New Zealand through the Health Practitioners Competence Assurance Act. Where a quality assurance activity (QAA) such as a surgical audit has been approved under the Health Practitioners Competence Assurance Act, the following protections may be available:

- Information that becomes known as a result of the QAA activity may be confidential.
- Participants in the QAA activity may be immune from civil liability in relation to activities carried out in good faith as part of the QAA.

It is important to note that not all clinical or surgical audits will be covered by the QAA. You should enquire with the hospital or institution administrators whether the surgical audit you are participating in has been declared as a QAA for the purposes of the Health Practitioners Competence Assurance Act and what requirements are to be met to ensure the surgical audit activity is adequately protected.

Where can I get more information on QAA in Aotearoa New Zealand?

The New Zealand Government's Ministry of Health provides information about the scheme, including how to apply.

Section 5
Identifying underperformance and managing outliers

Pathways to the identification of the underperformer

There are several ways in which underperformance comes to the attention of RACS members. Single events may be reported through hospital complaints processes or in morbidity and mortality meetings. Similarly, trends may be observed informally in a hospital or community, or they may be identified in structured reviews. Such reviews may be carried out as part of surgical audit by groups of surgeons in units, departments or hospital-wide, or by specialty surgical groups regionally or nationally. The impact of these observations and the level of concern generated are influenced by the severity, frequency, type and context in which the events occur.

Under performance also comes to light through complaints to external bodies including Review Boards, State and Territory Medical Boards, Health and Disability Commissioners, Ombudsmen, Medical Council Disciplinary Committees and through legal actions. It is not intended to deal with assessments of performance by external bodies, although the principles given below are relevant to them.

Confirmation of possible underperformance

It is important to ensure that the observation is justified. First appearances can be deceiving. For any review of the event(s) it should be clear whose responsibility this is. To ensure this the following should be considered:

- Rules for underperformance should be in place prior to the peer review group meeting and it should be known whether there is protected status of the evaluation as a peer review activity.
- Legal obligation to report underperformance as well as the processes required within an institution should be clear.
- Anonymity of the individual should be maintained wherever and if possible. Rules for when and by whom coded information may be broken should be in place.
- Use of validated statistical analysis should be used to include, for example, case mix considerations or appropriate bench marking.
- Definition of outlier status should be predetermined wherever possible.
- The person leading the evaluation should be an acknowledged respected member of the peer group who should preferably have been given this responsibility prior to the event.
- The number of persons involved in an initial appraisal should be limited.
- Where there is conflict of interest, other peers should be engaged.
- Use of an independent assessor or advisor may be helpful.

Managing an outlier through a structured audit process

RACS has developed guidelines for managing an outlier through structured audit processes. These guidelines provide a generic pathway for surgeons in all specialties to use for managing outliers identified using a structured surgical audit. The guidelines have been developed to ensure that existing and future surgical audit programs include appropriate audit design and processes. This is a step wise process.

1: Identification of the standard or benchmark and formation of an audit monitoring and review committee

Standards and outlier processes should be agreed to prior to implementation. In all institutions an audit monitoring/review committee should be formed, and terms of reference agreed. Formation of the committee involves:

- development of standards for the audit(s)
- consideration of application for qualified privilege (QP) or quality assurance activity (QAA) and jurisdictional requirements
- defining the term of office and composition of the Committee which may include:
  - RACS representatives such as the Chair of RACS Training Board in the specialty and the Specialty Society CPD representative on the Board of Professional Development and Standards (PDSB) or nominee
  - two to four peer members by agreement, depending on the size of the specialty group
- consideration of flexibility for the membership of the audit monitoring/review committee, given the differences in specialties and
- signing of a confidentiality

agreement by the Chair prior to commencement of role.

2: Receipt of the outlier report

A report on de-identified outlier is submitted to audit monitoring/review committee. The report:

– provides reasons if no further review/action/investigation is contemplated and

– features de-identified information only.

3: Identification of the outlier

The Audit/Data Manager confirms identify of outlier surgeon with Chair, Audit Monitoring/Review Committee. The Chair communicates with the outlier surgeon about:

– any conflict of interest

– their outlier status and the activation of the assessment group

– information that determined outlier status

– their opportunity to prepare their response to address their outlier status and

– the processes of procedural fairness and natural justice that will be observed.

4: Formation of an assessment group

An assessment group (separate from the audit monitoring/review committee) is activated and conflict of interest is considered.

The assessment group may consist of:

– Chair, Audit Monitoring/Review Committee

– Chair/representative from Regional

Committee

– Chair/representative from Specialty Society and

– nominated peer member(s).

The assessment group's deliberations must always be maintained in confidence.

5: Assessment of the outlier data, reporting and recommendations

The procedure for the assessment group is as follows:

– A meeting is held involving the outlier surgeon and his/her nominated support person after identification of and confirmation of outlier.

– Confidentiality agreements are signed.

– Changes may be recommended to the outlier surgeon's practice or for their retraining.

– The recommendations and consequences of non-compliance or underperformance are communicated to outlier surgeon.

– Communication includes recommendations that are specific and to be achieved within a defined time frame.

– A follow up review is arranged, and a date determined.

The outlier surgeon implements recommendations(s). Where retraining is involved, Specialty Society/College support can be arranged by the Chair, Surgical Advisors and RACS Executive Director Surgical Affairs (EDSA). The follow up review requires:

– The College's re-skilling and re-training program policy be considered where retraining is

involved.

– The review findings be communicated to outlier and second review date set.

– Communication is issued by Chair of Audit Monitoring/Review Committee.

– Ongoing or further recommendations be considered.

The assessment group may consider a range of options to progress. Possible options include:

– meeting again with outlier surgeon and his/her nominated support person

– retraining with a further review date

– a request to cease all practice while retraining is carried out

– a request to cease specific work area and/or

– variation in scope of practice.

The Chair (through specialty society president where appropriate) notifies a range of position holders and organisations as required. These position holders and organisation are:

– RACS President

– Credentialing Committee of relevant hospitals and

– Medical Board of Australia/Medical Council of New Zealand.

In addition, if there is evidence of, or an allegation of, serious misconduct the President through Council may wish to refer the outlier surgeon to the Professional Conduct Committee for consideration of sanctions under the RACS Code of Conduct.

Section 6
Surgical audit and Continuing Professional Development

Participation in audit is mandated by the Medical Board of Australia and Medical Council of New Zealand (MCNZ).

The RACS Continuing Professional Development (CPD) Program requires all surgeons who conduct operative procedures in hospitals, day surgery units or private rooms to participate in a surgical audit each year and to submit such an audit for peer review.

Surgeons in non-operative practice are also required to participate in audit activity as directed by the regulator in their respective jurisdiction.

RACS CPD standard – surgical audit and peer review

For CPD purposes, an audit must comply with the following minimum standards.

1. The participation in audit/s must accurately reflect the surgeon's scope of practice.

2. An audit can be one of the following:

– total practice audit

– selected audit (must include at least 10 weeks of surgical data)

– clinical unit audit

– group or specialty audit

– a focused audit

– locum logbook

– peer review of reports (non-operative surgeons only) or

– Registry (with peer review).

3. The audit must be benchmarked against minimum standards, guidelines or relevant research for that procedure(s), for example the Colonoscopy Clinical Care Standard.

4. The audit must, at a minimum, incorporate data that meets the RACS standard for minimum dataset.

5. The audit must be submitted for peer review.

6. Where an outlier is identified, the surgeon must undertake steps to change their practice and their progress must be monitored.

Audit for surgeons in operative practice

Participation in surgical audit is an annual requirement within the RACS CPD Program. Surgeons who work in operative practice in hospitals or day surgery units, or in rooms only are required to undertake a peer reviewed surgical audit and participate in the Australian and New Zealand Audit of Surgical Mortality (ANZASM). This is available in Australia only.

ANZASM

The Australian and New Zealand Audit of Surgical Mortality (ANZASM) is an independent, external peer review of surgical mortality in all states and territories of Australia. The audit is not available to surgeons in Aotearoa New Zealand. The purpose of an audit is to review all deaths that occur during an episode of surgical care and to provide opportunities for improvements in patient outcomes.

Each regional audit is covered by qualified privilege at Commonwealth level. The Qualified Privilege (QP) declaration (PDF 983.01KB) encourages surgeon participation within the mortality audits, and strictly protects

the confidentiality of information obtained in the audit.

Please see the RACS website for more information about ANZASM.

Audit for surgeons in locum practice

Surgeons who work only in locum practice are required to undertake a peer reviewed surgical audit and participate in ANZASM where available. If a peer reviewed audit is not available, these surgeons are required to maintain a logbook of surgical procedures in Mortality Audit Logbook Tool (MALT) and present this to the Locum Evaluation and Peer Review Committee (LEPRC) for review.

The LEPRC will only accept logbooks where the surgeons have completed at least 10 weeks of locum practice.

Fellows who volunteer overseas may also elect to use MALT where no audit is available.

Audit for surgeons in non-operative practice

Options for audit for non-operative surgeons include:

– non-operative audit of patients

– peer review of clinical reports and

– student evaluation (for teaching roles).

If there are other activities that you think would meet an audit standard and should be included in the CPD Program, please contact the CPD team at RACS.

Peer review

Some surgeons, including those in private or isolated practice, may experience difficulty in obtaining a peer review of their audit. If you are unable to arrange a review of your audit, you can contact the CPD team at RACS who can assist to facilitate a de-identified peer review.

Approval of surgical audits for CPD

A comprehensive list of specialty and sub-specialty audits is listed on the RACS website.

If you have an audit program or audit tool that you would like considered CPD, please contact the CPD team.

Where can I get more information about audit and CPD?

RACS CPD audit page

Orthopaedic surgeons who are participating in their specialty society CPD Program can also contact:

Australian Orthopaedic Association

New Zealand Orthopaedic Association

Surgeons specialising in ophthalmology should contact the Royal Australian and New Zealand College of Ophthalmologists

Glossary of terms

Adverse event
Unintentional harm arising from an episode of healthcare and not due to the disease process itself

Aggregates
A count of different procedures, emergencies, electives, unplanned reoperations etc

Australian and New Zealand Audit of Surgical Mortality
An independent, external peer review of surgical mortality in all states and territories of Australia

Binary outcome
An outcome from a procedure or intervention that can be Yes or No; it happened, or it didn't; or a success or failure

Calculations
Present complication rates for operations, sometimes subclassified by some method of risk stratification e.g. staging, urgency or ASA/co-morbidity/age

Charlson Comorbidity Index
Assesses comorbidity level by taking into account both the number and severity of 19 pre-defined comorbid conditions

Clavien-Dindo classification system
A system widely used to grade complications according to a five-point scale

Clinical indicators
Measures of elements of clinical care which may, when assessed over time, provide a method of assessing the quality and safety of care at a system level

Clinical unit audit
An audit conducted by a clinical unit in which a number of individual surgeons may participate

Complication
Any deviation from the normal postoperative course

Cumulative Sum
A time plot of attempts against an agreed binary target

Elixhauser Comorbidity Index
A method of categorizing comorbidities of patients based on the International Classification of Diseases (ICD) diagnosis codes found in administrative data, such as hospital abstracts data

Focused audit
An audit that collects data on the process or outcome indicators such as those recommended by departments of health

Group or specialty audit
An audit conducted by or under the auspices of a group or Specialty Society

Morbidity and Mortality meeting
A regular conference held by medical services in hospitals which involves a peer review discussion of issues that occurred during the care of patients and resulted in a complication or death

Notifiable Data Breaches (Australia)
The unauthorised access or disclosure of personal information, or loss of personal information which an organisation or agency covered by the Privacy Act 1988 must report when that breach involving personal information is likely to result in serious harm

Peer review
Peer review involves an evaluation of one's work by one's peers; peers are other surgeons with comparable training and experience

Privacy Act 1998 (Cth) (Australia)
Introduced to promote and protect the privacy of individuals; regulates how Australian Government agencies and organisations with an annual turnover of more than $3 million, and some other organisations, handle personal information

Protected Quality Assurance Activities (Aotearoa New Zealand)
Health practitioners whose work is subject to ongoing assessment as part of a Quality Assurance Activity (QAA) can apply to the Ministry of Health to have that activity protected under the Health Practitioners Competence Assurance Act 2003 (the HPCA Act). Under the HPCA Act the Minister of Health can declare a QAA to be 'protected' if the Minister is satisfied that to do so is in the public interest[19].

Privacy Act 1993 (New Zealand)
Controls how 'agencies' collect, use, disclose, store and give access to personal information

Privacy Act 2020 (New Zealand)
Repeals and replaces the Privacy Act 1993 (New Zealand)

Qualified privilege (Australia)
Encourages hospitals and health professionals to conduct quality improvement activities and investigate the causes and contributing factors of clinical incidents by protecting certain information from disclosure

Registry
An organised system that uses observational study methods to collect uniform data (clinical and other) to evaluate specified outcomes for a population defined by a particular disease, condition, or exposure and that serves predetermined scientific, clinical, or policy purpose(s)[20]

Risk adjustment
the process of statistically accounting for differences in patient case mix that influence health care outcomes[21]

Selected audit from surgical practice
An audit that covers all patients who undergo a selected procedure, or an audit that covers all procedures conducted within a selected timeframe

Surgical audit
A systematic, critical analysis of the quality of surgical care that is reviewed by peers against explicit criteria or recognised standards, which is then used to further inform and improve surgical practice with the ultimate goal of improving the quality of patient care

Total practice or workload audit
An audit that covers all the surgical operations performed

Abbreviations

ACSQHC	Australian Commission on Safety and Quality in Healthcare
ACT	Australian Capital Territory
ANZASM	Australian and New Zealand Audit of Surgical Mortality
ASA	American Society of Anaesthesiologists
CCI	Charlson Comorbidity Index
CPD	Continuing Professional Development
CUSUM	Cumulative Sum
ECI	Elixhauser Comorbidity Index
EDSA	Executive Director for Surgical Affairs
HRC	Health Research Council (New Zealand)
HREC	Human Research Ethics Committee (Australia)
IRD	Inland Revenue Department (New Zealand)
LAOS	Limited Adverse Occurrence Screening
LOS	Length of Stay
M&M	Morbidity and Mortality
MALT	Morbidity Audit Logbook Tool
MBA	Medical Board of Australia
MCNZ	Medical Council of New Zealand
MET	Medical Emergency Team
MoH	Ministry of Health (New Zealand)
NDB	Notifiable Data Breaches
NHMRC	National Health and Medical Research Council
NSW	New South Wales
NSQIP	National Surgical Quality Improvement Program
NT	Northern Territory
NZ	Aotearoa New Zealand
OAIC	Office of the Australian Information Commissioner
POSSUM	Physiological and Operative Severity Score for the enumeration of Mortality and Morbidity
PROM	Patient Reported Outcome Measure
QA	Quality Assurance
QAA	Quality Assurance Activity (New Zealand)
QLD	Queensland
QP	Qualified Privilege
RACS	Royal Australasian College of Surgeons
SA	South Australia
SIMG	Specialist International Medical Graduate
TAS	Tasmania
TPN	Total Parenteral Nutrition
VIC	Victoria
WA	Western Australia

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