



# Guideline on quality assurance and quality improvement in anaesthesia

## 1. Purpose

The aim of these guidelines is to assist practitioners in achieving the highest quality of care for their patients through an understanding of Quality Assurance (QA) and Quality Improvement (QI).

## 2. Introduction

- 2.1 It is incumbent upon Fellows at an individual, departmental and institutional level to contribute to the collective assurance and improvement of the safety and quality of patient care and the College and its Faculty to support such initiatives.
- 2.2 QA involves establishing that facilities or processes meet accepted standards. QI seeks to promote continuous improvement to achieve increasingly better outcomes for patients. QI should progressively elevate the standards applicable for ongoing QA.
- 2.3 The ultimate purpose of QA and QI is often expressed as a “Triple Aim”<sup>3</sup>.
  - Improved quality, safety and experience of care for individual patients.
  - Improved health and equity for the population.
  - Best value for the available resources.
- 2.4 Achieving the Triple Aim depends on high quality care, which implies:
  - Doing the right things (which means providing care that is evidence based and meets patients’ individual needs and wishes).
  - Doing things right the first time.
- 2.5 These two overarching principles can be understood within a framework of the elements of quality in healthcare, which are:
  - Safety
  - Timeliness
  - Efficiency
  - Efficacy
  - Equitability
  - Patient-centredness
- 2.6 Expertise and competence are essential for high safety and quality care and depend on training and on continuing professional development (CPD). Maintaining current and appropriate curricula and a relevant and effective CPD standard and program are therefore primary responsibilities of the College and its Faculty. Teaching is an important responsibility for all clinicians. Compliance with the College’s CPD standard is mandated by the Medical Board of Australia for all registered specialist anaesthetists and specialist pain medicine physicians practising in Australia, and participation in the program is mandated by the Medical Council of

New Zealand for vocationally registered anaesthetists and pain medicine physicians practising in New Zealand.

- 2.7 Research underpins the scientific advances that progress anaesthesia, pain management and the perioperative care of patients<sup>1,2,3,4</sup>. Thus the support and facilitation of soundly based and properly conducted research is another integral component of QI. The College and its Faculty is committed to advancing research relevant to its disciplines, and Fellows and trainees should support and facilitate soundly based and appropriately conducted research whenever possible.

### **3. Scope**

This document applies to trainees and Fellows. The quality of care received by patients receiving treatment for pain conditions, or undergoing surgery and anaesthesia depends on both, but it also depends on many other people. Therefore, QA and QI activities should ideally be coordinated between anaesthetists, surgeons, nurses, hospital administrators and other relevant disciplines.

### **4. Definitions**

- 4.1 QA can be defined as “an organised process designed to ensure the maintenance of a desired level of safety and quality in a service or product”.
- 4.2 QI can be defined as “an iterative process to continuously improve the safety and quality of care provided to patients”.

Notwithstanding the above definitions, there is often overlap between QA and QI, and some projects may serve both objectives: the important thing is the goal of achieving excellent patient outcomes with the appreciation that expectations of acceptable outcomes should improve continuously, over time.

### **5. Measurement in quality assurance and quality improvement**

- 5.1 Measurements that provide comparisons against accepted standards or previous outcomes, or between institutions are an essential component of QA and QI<sup>5</sup>. Both quantitative and qualitative information may be important in measuring the quality of healthcare.
- 5.2 In general, measurement may focus on:
- Structure
  - Process
  - Outcome
- 5.3 Outcome measurements reflect the ultimate objectives of QA and QI, but it is usually easier to measure structure and process. Also, outcomes are influenced by case mix and other factors beyond practitioners’ control, whereas structure and process should largely be independent of such influences.
- 5.4 Ideally a combination of measures of structure, process and outcome should be selected. It is not necessary to measure any of these domains comprehensively. It will often be more efficient (and therefore better) to choose one aspect of each of these domains that is practical and affordable to measure that can be expected to act as an indicator of overall quality.
- 5.5 It is difficult to either assure or improve the quality of a process without measurement, but there are circumstances when the cost or practical difficulty of measurement is out of proportion with the likely benefit of obtaining the relevant information and there are circumstances in which initiatives to improve or assure the quality of care can be justified on first principles supported by expert consensus without the absolute necessity for measurement.

## 6. Process of quality assurance and quality improvement

6.1 There are many ways to assure or improve quality, but QA and QI should be systematic processes underpinned by science, based on scientifically plausible constructs grounded in first principles or empirical data, and supported by carefully selected measurements and sound analyses using suitable statistical methods when appropriate. Relevant expert advice (notably on statistics, on the use of qualitative data and on improvement science) is critically important in designing projects and in the selection and interpretation of either quantitative or qualitative measures. Collaborative and consensus based approaches are often highly effective in QI, and in promoting compliance with important requirements for QA and these approaches should be considered for any QA or QI project.

6.2 Any QA or QI project involves expense (in the form of time or money), which represents an opportunity cost (i.e., resource used for one thing is no longer available for another, possibly more important thing). It is thus essential that the purpose and value of any QI or QA project, and any measurement, is clearly articulated. Ideally this should include articulation of the expected impact on patient care and cost, even if these are long-term goals and cannot be directly measured (for example, the primary long term goal of regular investment in CPD is to assure and improve patient outcomes).

### 6.3 Examples of quality assurance projects

6.3.1 Criteria-based audits are a specific type of QA project (that may also serve the purpose of QI). Selected aspects of structure, process or outcome are reviewed on a one-off basis (although repeat audits may be appropriate from time to time). Measures are evaluated against predetermined criteria (for example, reported outcomes of peer groups). In areas without published criteria, new criteria can be established by original study or by consensus of peers. Examples of criteria-based audits can be found on the ANZCA website CPD page <http://www.anzca.edu.au/fellows/continuing-professional-development/handbook-and-resources/clinical-audit-samples>.

6.3.2 Selected metrics may be worth collecting on an ongoing basis. Such metrics should be carefully chosen. They should be relevant to context and should be reviewed from time to time, taking into account the purpose of each measurement and the cost.

6.3.3 Clinical guidelines, policies, or protocols are an important part of QA, and their development, review and implementation should be linked to audit and ongoing measurement. The development of a policy can be an effective way of formulating consensus within a group (such as the members of a department) on an important and potentially contentious issue (in general there is little need for policies on issues that are not contentious). Local applications of policies developed by the College and its Faculty or other organisations (e.g., the World Health Organization) may be of considerable value. It is generally best to focus at any one time on developing (or reviewing) and effectively implementing a small number of well-construed policies relevant to local context.

6.3.4 The steps in a typical QA project (whether one off or ongoing) are likely to include planning, implementation, review, and standard setting.

- **Planning** involves the careful design and preparation of a project, which includes defining the topic to be evaluated, the data to be collected, and the methods used to collect and analyse data.

- **Implementation** involves collection of data and its analysis, review of results, and action to be taken.
- **Review** involves monitoring the outcome of actions, to “close the loop”. Showing the outcome or impact of a QA program on health care is an important component of the program.
- **Setting** (or revising) standards (or policies) involves incorporating the improvements achieved into new or revised official regulations, guidelines, or standards.

#### 6.4 Examples of quality improvement projects

One typical type of QI project attempts to improve a selected aspect of patient care by using an iterative feedback loop - the so called “rapid improvement cycle”, (also known as “Plan, Do, Check, Act”).

- **Planning** involves review of data within a particular healthcare context, identification of opportunities of improvement and formulation of a plan for action and for monitoring the results of these actions.
- **Doing** involves implementing the action plan.
- **Checking** involves reviewing the collected data to understand the impact of the initiative and modify the plan for the next phase of action as well as the plan for monitoring the ongoing effect of the revised initiative.
- **Acting** involves implementation of the revised action plan, accompanied by ongoing data collection according the revised monitoring plan.

### 7. Quality assurance and quality improvement programs

- 7.1 QA and QI projects should be incorporated into an overall QI/QA program. The program should be designed with reference to all relevant domains of safety and quality taking into account local context. The development of capability and capacity is an important element of QA/QI and provision should be made for participation of staff members in appropriate educational activities to increase their understanding and expertise in this field of knowledge.
- 7.2 Risk management is an important part of QA: it involves the regular, proactive identification of risks, assessment of risk factors, and implementation of controls to mitigate the identified risks. The process of identifying locally important risks should inform at least some of the projects undertaken within a QA/QI program.
- 7.3 Reporting to and participating in institutional and external national and (Australian) state/territory programs

An increasing number of programs are contributing to QA and QI at national and institutional levels. It is appropriate to report to and participate in these rather than attempting to replicate each locally, but relevant local activity is also essential. Examples include:

- 7.3.1 Mortality, and mortality and morbidity committees, supported by local reviews.
- 7.3.2 Adverse reactions committees.
- 7.3.3 Sentinel and serious adverse event reporting and root cause analysis: analysis of serious events associated with anaesthesia, perioperative care and pain management should be

reported and reviewed with participation in institutional activities focusing on identification of contributory factors and the identification of actions to improve future safety.

- 7.3.4 Critical incident reviews: Critical incident reporting is well established at a bi-national level in anaesthesia in Australia and New Zealand. Participation in [WEBAIRS](#) is important and should include local review of incident reports with a view to identifying and addressing contributing and mitigating factors. Strategies for improvement should be developed where possible, and actions taken to implement these strategies. The effects of implementing change should be evaluated within a structured approach such as that outlined above.
- 7.3.5 A mechanism for receiving and managing patients' complaints or comments is another important element of QA and QI. Again, it is sensible to integrate departmental mechanisms with those of the wider institution, but this integration should be explicit.
- 7.3.6 Patient experience surveys are an important element of QA and QI. These should focus on specific issues selected because of their relevance to care and should reflect patients' experiences and observations rather than their satisfaction (which is a more subjective matter): for example, their experience of pain as mild, moderate or severe, or how long it took for analgesia to be provided when requested. Patients should not be subjected to excessive surveying and the value lies in careful selection of questions. Ideally, it should be possible to compare aggregated data with similar data from other institutions. On an ongoing basis, integration of key questions related to anaesthesia or pain management into national and institutional surveys of patient experience is appropriate. From time to time, audits of specific aspects of patient experience may be considered (e.g., patients' experience of pain, communication, anxiety alleviation, informed consent).
- 7.3.7 Staff experience surveys may also be of value, and should be undertaken on an intermittent basis.

#### 7.4 An example program

The following outline includes examples of the sorts of thing such a program might address:

##### 7.4.1 Structure

- 7.4.1.1 Numbers and qualifications of staff.
- 7.4.1.2 Equipment, including monitoring equipment, equipment for managing difficult airways, equipment for echocardiography.
- 7.4.1.3 Service space.
- 7.4.1.4 Facilities for teaching, education, and research.
- 7.4.1.5 An active risk register.
- 7.4.1.6 Explicit arrangements for receiving and managing patients' complaints and comments.

##### 7.4.2 Process

- 7.4.2.1 Regular review and analysis of risk.

- 7.4.2.2 Procedures for maintenance and replacement of equipment.
  - 7.4.2.3 Criteria and process of selection and appointment of staff.
  - 7.4.2.4 Allocation of work (hours and type) and supervision.
  - 7.4.2.5 Participation by staff in CPD including educational activities, teaching, peer reviews, multi-source feedback and patient experience surveys.
  - 7.4.2.6 Participation by staff in research and QA or QI projects.
  - 7.4.2.7 Regular audits and ongoing measurements of selected patient outcomes, including patient experience and staff experience.
  - 7.4.2.8 Administrative procedures, including budgets, HR procedures, processes for purchasing and expenditure.
- 7.4.3 Outcomes
- 7.4.3.1 Hours actually worked by staff.
  - 7.4.3.2 Examination results of trainees.
  - 7.4.3.3 Mortality rates for selected groups of patients (an outcome measure that applies to the whole perioperative team).
  - 7.4.3.4 Other selected patient outcomes.
  - 7.4.3.5 The results of selected clinical indicators for PACU.
  - 7.4.3.6 Publications and conference presentations.
  - 7.4.3.7 Measures over time that actually describe the ongoing performance of the department, including selected patient outcomes and measures of patient experience.
  - 7.4.3.8 Financial results against budget.
  - 7.4.3.9 Staff retention and recruitment (measured by turnover, and by number of vacancies and level of competition for positions when advertised).

7.5 Audit of QA/QI programs:

QA/QI programs should be reviewed from time to time to ensure that they remain relevant and cost effective.

## **8. Resources for quality assurance and improvement**

- 8.1 Formally constituted departments of anaesthesia should appoint a coordinator of QA and QI, normally for a period of two years, with eligibility for re-appointment. These coordinators will be responsible for the implementation and supervision of appropriate QA and QI programs. Appropriate time and support should be allocated to this coordinator.

- 8.2 Support for professional development of the QA/QI coordinator is important; this role requires specific knowledge and appropriate training will often be required.
- 8.3 The QA/QI coordinator should ensure that these College guidelines are implemented in a locally relevant and appropriate manner.
- 8.4 Anaesthetists who work outside a formally constituted department of anaesthesia should participate in an appropriate QA and QI program.
- 8.5 Sufficient resources of people, time and support should be available for all anaesthetists and trainees to participate fully in QA and QI programs.

### **Related ANZCA documents**

CP24(G) Policy for the development and review of professional documents

**This document is accompanied by a background paper (PG58(A)BP) which provides more detailed information regarding the rationale and interpretation of the Guideline.**

### **References**

1. Bessissow A, Duceppe E, Devereaux PJ. [Addressing Perioperative Myocardial Ischemia](#). Curr Anesthesiol Rep. 2014; 4(2):107-112.
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4. Wahr JA, Abernathy JH. [Improving patient safety in the cardiac operating room: doing the right thing the right way, every time](#). Curr Anesthesiol Rep. 2014; 4(2):113-123.
5. Australian Commission on Safety and Quality in Health Care. [National Safety and Quality Health Service Standards](#). 2012

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