Anaesthesia underpins acute patient care in hospitals

Walter R Thompson, Garry D Phillips and Michael J Cousins

Abstract

The Australian and New Zealand College of Anaesthetists (ANZCA) carried out a review of the roles of anaesthetists in providing acute care services in both public and private hospitals in Europe, North America and South-East Asia. As a result, ANZCA revised its education and training program and its processes relating to overseas-trained specialists. The new training program, introduced in 2004, formed the basis for submissions to the Australian Medical Council, and the Australian Competition and Consumer Commission/Australian Health Workforce Officials' Committee review of medical colleges. A revised continuing professional development program will be in place in 2007.

Anaesthetists in Australia and New Zealand play a pivotal role in providing services in both public and private hospitals, as well as supporting intensive care medicine, pain medicine and hyperbaric medicine. Anaesthesia allows surgery, obstetrics, procedural medicine and interventional medical imaging to function optimally, by ensuring that the patient journey is safe and has high quality care. Specialist anaesthetists in Australia now exceed Australian Medical Workforce Advisory Committee recommendations.

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What is known about the topic?

The roles of anaesthetists have changed from a focus on supporting acute hospital care to broader roles in day surgery and resuscitation and retrieval. Both physicians and non-physician clinicians have been providing anaesthesia services in various models in different countries.

What does this paper add?

This paper presents a summary of the international review conducted by the Australian and New Zealand College of Anaesthetists to inform future training programs.

What are the implications for practitioners?

Anaesthetists are in sufficient supply to fill demand in both Australia and New Zealand, and to lead changes in the anaesthesia patient care team, including contributions to the issue of safe, high quality procedural sedation, and further development of more efficient and effective models of perioperative and periprocedural patient care.

ANAESTHESIA UNDERPINS acute hospital care. The Australian and New Zealand College of Anaesthetists (ANZCA) reviewed anaesthesia training and practice in the United Kingdom, Europe, Canada, and the United States, carried out by literature review and liaison of senior College personnel directly with their counterparts in the relevant training organisations. Anaesthetists in all countries are involved in anaesthesia and sedation for surgery, obstetrics, medical procedures, and medical imaging procedures. The term "anaesthesia" includes pre-anaesthesia patient assessment, anaesthesia or sedation during the procedure, and immediate postanaesthesia care. The role of anaesthetists is established to a variable extent in intensive care medicine, pain medicine and hyperbaric medicine. Over the last 20 years, anaesthetists have led the organisation and management of day surgery units.[1,2]

In some countries, medical retrieval teams are based in anaesthesia departments, and there has been a long history of anaesthetists providing

training in resuscitation skills for paramedic ambulance officers and other acute care field personnel.

Changing roles of anaesthetists

In the UK, the scene has changed from 1997[3] when anaesthetists saw themselves as continuing a medical-only service underpinning acute care in hospitals (which was their position for most of the twentieth century), to current cooperation in a pilot project training anaesthesia practitioners, with the aim of extending the anaesthesia patient care team under medical direction.[4] The National Health Service (NHS) Modernisation Agency was born of multiple inquiries, the European Directive on Working Hours, and other demands.[5]

Creation of the Postgraduate Medical Education Training Board is impacting on the role of the Royal College of Anaesthetists (RCA),[6] whose graduates are comparable to ANZCA graduates. Leedal and Smith[7] have expressed caution in the approach to safety aspects of non-physician anaesthetists, especially in relation to managing the critical events which occur in anaesethesia. One important difference of the Australian anaesthesia workforce from that in the UK is that ANZCA participates with the Royal Australian College of General Practitioners and the Australian College of Rural and Remote Medicine in the Joint Consultative Committee in Anaesthesia program which trains general practitioner anaesthetists. There is no similar program in the UK.

In Europe there are many models of anaesthesia care, nearly all of which include non-medical members of the anaesthesia care team who work under the supervision of physician anaesthetists.[8] A report published jointly by French anaesthesia and intensive care organisations and the National Institute for Demographic Studies in 2004[9] took account of the projected decline in anaesthesia resources and canvassed solutions such as centralisation of surgery, obstetrics, operative endoscopy and imaging into larger units; establishment of protocols for analgesia and sedation for radiologists or endoscopists; increased involvement of nurses under medical direction; immigration of overseas-trained doctors; and increased medical school output.

The role of nurses in anaesthesia in The Netherlands and Sweden was examined by the RCA and the NHS Modernisation Agency in 2002.[6] The OECD published a blueprint for skill mix in the health workforce.[10] After surveying practices in sixteen countries, the report proposed that introduction of advanced nurse practitioners should take into account agreement of all key stakeholders (nursing, medical, ministries, employers and regulators); definition of advanced roles and associated educational requirements; issues of national certification and registration; and establishment of career structures.

Canada, demographically much more akin to Australia than the UK, Europe or the US, has a shortage of anaesthetists, projected to worsen. In Canada to date, anaesthesia has been delivered only by medical specialist anaesthetists. However, in 2003 the Canadian Health Services Foundation reported an international comparative review which examined the health human resources planning in Canada, Australia, France, Germany, Sweden and the UK:[11] this was followed in 2004 by the Ottawa Federal/Provincial Health Summit, and an editorial in the Canadian Anesthesiologists' Society journal in 2005[12] which challenged anaesthesia bodies to "play both an early and leadership role in the provision of anesthesia services by non-physician providers, including the setting of standards and training". Following a national survey of all licensed health care facilities potentially employing anaesthesia services in Canada, Engen[13] concluded that "New models of delivering health care, including the appropriate use of anesthesia assistants, need to be explored to increase clinical output and emphasize the role of physicians as diagnosticians."

The USA model of health care is complex, and anaesthesia developed quite differently there. Anaesthesia was first provided by nurses under the direction of the surgeon, and physician anaesthetists developed long after medically trained anaesthetists provided this function in Britain and its Commonwealth. Anaesthesia is currently provided by medically trained anaesthetists, sup-

1 Numbers of Australian and New Zealand College of Anaesthetists (ANZCA) Fellows, trainees, overseas trained specialists and general practitioner anaesthetists, December 2005

4110 Fellows worldwide

Australia 3150
New Zealand 490
Hong Kong 175
Singapore 65
Malaysia 55
Other 175

1250 trainees worldwide

Australia 883
New Zealand 187
Hong Kong 84
Singapore 58
Malaysia 18
Overseas 20

In 2005, ANZCA graduated

198 new Fellows
23 overseas trained new Fellows

and assisted in the graduation of 18 general practitioner anaesthetists

ported in most states by Nurse Anaesthesia Assistants under Medicare. Some states allow Certified Registered Nurse Anesthetists (CRNAs) to practise independently. The difficulties created in the US include medico-legal issues, increased salaries of CRNAs, and unwillingness of surgeons to accept responsibility for nurse anaesthetists.[14] Two national surveys to examine trends in care provided by physicians and non-physician clinicians between 1987 and 1997 found that "if anything, our data on race or ethnic group, education, income, and insurance status suggest that non-physician clinicians see patients who are somewhat less disadvantaged than those seen by physicians".[15] A cost-effectiveness analysis which compared physician anaesthetists with the nurse anaesthetist model of care in the public and private sectors, using mortality data and closed claims studies as well as Medicare and private payer data, found little difference between physician-directed anaesthesia and non-medically directed nurse anaesthesia.[16]

Levers for change in Australia and New Zealand

ANZCA was incorporated in 1992, assuming the role and responsibilities of the Faculty of Anaesthetists of the Royal Australasian College of Surgeons, established in 1956.

ANZCA provides education and training in anaesthesia, and awards Fellowship of the College to its trainees who complete all requirements. ANZCA also awards fellowship to overseas-trained specialist (OTS) anaesthetists who complete the process agreed by ANZCA and the Australian Medical Council (AMC) in 2002. In Australia, ANZCA participates with the Royal Australian College of General Practitioners and the Australian College of Rural and Remote Medicine in the Joint Consultative Committee in Anaesthesia, which provides both training and continuing professional development (CPD) programs for GP anaesthetists.

Training programs accredited by ANZCA exist in Australia, New Zealand, Hong Kong, Singapore and Malaysia, and ANZCA Fellows were involved in the development of anaesthetist training programs in these countries. ANZCA has established a Faculty of Pain Medicine, a newly approved medical specialty in Australia, and the Joint Faculty of Intensive Care Medicine (with the Royal Australasian College of Physicians), which trains intensive care specialists in Australia and New Zealand. The anaesthesia training program was approved by the AMC in 2002,[17] and a revised program was introduced in 2004. While the academic content has been updated, major changes have been creation of a modular training program which is better suited to competency assessment than the older program; is more flexible for trainees; is founded on principles of reflective adult learning; and is explicit in areas of professional attributes and practice which, although contained in the previous program, were often "accepted as understood."

In line with AMC and international developments, the CanMEDS principles[18] were formally adopted, so that assessment was aligned with the curriculum in the domains of medical expert, communicator, collaborator, manager, health

2 Safety in anaesthesia, Australia, 1936–2002

Deaths wholly or partially attributable to anaesthesia in Australia

1936	1 : 1 000
1960	1 : 5 000
1970	1 : 10 250
1990	1 : 20 000
2002	1 : 56 000 (80% poor risk)
Total anaesthetics	**2.6 million per annum**

advocate, scholar and teacher, and professional. All associated documents were revised[19,20] and policy changes made to include trainees in the College structure, and to establish a transparent approach to issues where College processes intersected with those of regulatory authorities (such as selection of trainees, accreditation of hospitals, removal of perceived restrictions on numbers of training posts). Review of processes for assessment of OTS anaesthetists were undertaken. All of these changes were considered by the Australian Competition and Consumer Commission/ Australian Health Workforce Officials' Committee review of medical colleges,[21] and data are reported to the Medical Training Review Panel annually.[22] Box 1 shows the numbers of ANZCA Fellows and trainees worldwide as of December 2005. The number of trainees and the number of graduates each year in Australia now exceed the targets set by the Australian Medical Workforce Advisory Committee.[23]

The College is in the process of a major review of its CPD program, which will be completed in 2007. The stated aim is to have a program which is much more than continuing medical education, which satisfies legislation relating to qualified privilege, and which ensures continuity between the training program and a program of life-long learning.

The future

Anaesthetists are in sufficient supply in both Australia and New Zealand to fill demand, and to lead changes in the anaesthesia patient care team, including contributions to the issue of safe, quality procedural sedation, and further development of more efficient and effective models of perioperative and periprocedural patient care. The care of a patient having an operation or procedure in hospital is currently fragmented and poorly coordinated. The generic permissiveness of anaesthesia practice and systems, with reference to surgical subspecialties and medical procedures, allows anaesthetists to develop a primary coordinating role, standardise clinical care which is not directly related to the surgery or the procedure, and operationally manage the episode of acute care.

Anaesthetists have facilitated and enhanced the emergence of day surgery, day-of-surgery admissions and acute pain management. Anaesthesia and intensive care have extended the expertise of intensive care unit management to the high dependency units and the medical emergency teams.[24] All of these have contributed to both safety and efficiency in acute care at a time when patients are older and present with a wide range of co-morbidities. Anaesthesia is the key, because it allows surgery, obstetrics, procedural medicine and interventional medical imaging to function optimally.

Individual health services are utilising the knowledge and skills of anaesthetists in development of new models of care such as the extended day only and perioperative medicine models of care. ANZCA supports those models which are predicated on ensuring quality patient care and will be facilitating and assessing trials of such models. A key concern is that the safety of anaesthesia in Australia remains as high as it has been for the last decade (and indeed improves further). Box 2 shows the enormous changes in safety of anaesthesia in Australia, 1936–2002. The most recent triennial report on deaths associated with anaesthesia states that the overall mortality is 1 : 56 000 of the 2.6 million estimated anaesthetics given each year. Eighty per cent of these deaths are in high risk patients.[25] The Quality in Australian Health Care Study published in 1995[26] found that anaesthesia was implicated in only 2% of adverse events. A recent

editorial[27] noted that "The major internationally acknowledged successes in patient safety in anaesthesia — such as the virtual disappearance of hypoxic brain damage and deaths from inadequate ventilation — have been achieved by the actions of practising anaesthetists."

Conclusions

Anaesthesia as a medical specialty in Australia and New Zealand is well positioned to meet the challenges of the future. We have a high quality education and training program for specialist anaesthetists and for GP anaesthetists; effective mechanisms for ensuring that OTS anaesthetists achieve equivalence to our bi-national qualification; and a willingness to participate in development of effective and efficient anaesthesia/sedation patient care teams and new models of patient care.

Competing interests

The authors declare that they have no competing interests.

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