

The Development and Heritage of Anaesthesia in Australia

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Abstract

It took 6 months for the news of anaesthesia to arrive in Australia in 1847, and the first anaesthetics occurred almost simultaneously in Sydney and Launceston. Information on anaesthesia in the following years came mainly from British medical journals. The Australian Society of Anaesthetists was founded in 1934 in Hobart, and a year later, there were 34 members. It is now one of the oldest medical organisations in Australia. The first anaesthetic department was established in 1930. The Faculty of Anaesthetists, Royal Australasian College of Surgeons was formed in 1952. The first Chair was the Nuffield Professor of Anaesthesia at the University of Sydney in 1962. The journal *Anaesthesia and Intensive Care* was founded in 1972. In 1992, the independent Australian and New Zealand College of Anaesthetists was established with the headquarters opening in Melbourne in 1994. The Faculty of Pain Medicine was established in 1998. Initially, the College had a Faculty of Intensive Care Medicine which became the College of Intensive Care Medicine in 2010. In 2025, a Chapter of Perioperative Medicine was established. Australian anaesthetists have been major contributors and leaders in the development of our speciality, both nationally and internationally for over 100 years.

Key words: Anaesthesia history, Australia, Australian Society of Anaesthetists, Australian and New Zealand College of Anaesthetists

INDIGENOUS MEDICINE

Before European settlement in the late 18th century, Pituri was a medicinal compound that was an integral part of the Aboriginal pharmacopeia. A mixture of twigs and leaves of *Duboisia hopwoodii* was mixed with the alkaline ash of the Acacia species. This was absorbed transmucosally by chewing or transcutaneously by being placed behind the ear. The principal ingredients were nicotine, nornicotine, and in some species, scopolamine. Lower doses caused alertness and vigilance, but higher doses produced some analgesia.¹

COLONIAL DAYS

After travelling halfway around the world by sailing ship, the news of the discovery of anaesthesia was first published in Australian colonial newspapers in May and June 1847, more than 6 months after William Morton's famous demonstration in Boston. The first anaesthetics occurred almost simultaneously in Sydney, New South Wales, and Launceston, Tasmania, in early June 1847 using ether with locally devised apparatus. Individuals who were involved included Drs John Belisario (dentist) and Charles

Nathan (surgeon) in Sydney, and Dr William Russ Pugh in Launceston. Dr Nathan was the first to use chloroform 10 months later.²

Australia was a colony of England, and the news of the development of other areas relevant to anaesthesia came predominantly from British medical journals. These areas such as development of the first laryngoscope, topical ether analgesia, local anaesthesia, asepsis, and other medical advances were often abstracted in Australian medical journals. The first School of Medicine started at the University of Melbourne in 1862, while the University of Sydney Faculty of Medicine came into being in 1856, but a medical school did not formally open until 1883.

Chloroform soon became the predominant anaesthetic agent, and its use persisted for many years. For many decades though, anaesthesia was simplistic, and supervised by the surgeon. It was often delegated to the junior medical and other staff. Dr Edward H Embley of Melbourne earned world renown for his physiological work on the effect of chloroform on the

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heart in several publications in 1902. Dr Rupert Hornabrook was the first fulltime anaesthetist in Australia, appointed to the Royal Melbourne Hospital in 1909. Dr Piero Fiaschi of Sydney in 1914 gave a live demonstration in dogs of insufflation anaesthesia for thoracic surgery at the Australasian medical congress in Auckland, New Zealand. A few hospitals were starting to appoint doctors as anaesthetists, but the advent of World War I (WWI) took many to the European and other theatres of war.^{2,3}

FOUNDATION OF THE AUSTRALIAN SOCIETY OF ANAESTHETISTS

The *Medical Journal of Australia* of 11 March, 1922, published a letter from Dr Francis H McMechan inviting interested Australians to communicate concerning attending meetings in America. The Editor replied that this invitation was very timely 'for an active body of skilled anaesthetists has arisen recently in this country'.⁴ McMechan suggested that a Section of Anaesthesia be included in the Australasian Medical Congress, and this occurred in Sydney in 1929. McMechan, in a wheelchair, read a paper at this meeting, and it was also attended by Dr Geoffrey Kaye of Melbourne. Kaye arranged a meeting at the Congress in Hobart in 1934, and the Australian Society of Anaesthetists (ASA) was founded by seven men from around Australia. In 1935, there were 34 members.⁵ The ASA is now one of the oldest continual medical organisations in Australia, having just celebrated its 90th anniversary. The ASA today offers comprehensive services to anaesthetists, represents them in professional and economic issues that impact public and private practice, and provides a broad range of high-end educational activities. The annual ASA National Scientific Congress is held every October.

DEVELOPMENT AND TRAINING

It was realised that local postgraduate formalised training was strongly needed after similar developments had occurred in Britain. The New South Wales Post Graduate Committee of the University of Sydney inaugurated a Diploma of Anaesthetics (DA) in 1944, and the following year, there were 35 applicants. The University of Melbourne instigated a similar diploma in 1946. Both the Colleges of Physicians and Surgeons were approached to issue a universal diploma, but this was not possible. Further training for those having done the DA was undertaken predominantly in the UK and USA before returning home.⁶

THE FACULTY OF ANAESTHETISTS, ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

Several prominent Australian anaesthetists were made Honorary Fellows of the Faculty of Anaesthetists, Royal College of Surgeons in the UK, which was inaugurated in 1948. One of these, Dr Harry Daly, was a founding member of the ASA and the first to use curare in Australia, and with others, he garnered support for a similar faculty in Australia. This was supported by the ASA in application to the Royal Australasian College of Surgeons (RACS), and this new Faculty of Anaesthetists was formed in 1952. The first Dean of the Faculty was Dr Douglas Renton, a former President of the ASA.

The Board of Faculty then steadily established an Australian and New Zealand-wide system of postgraduate education, examination, and qualification of specialist anaesthetists. The Faculty held its first final fellowship examinations in 1956, conferring the postnominal of Fellow of the Faculty of Anaesthetists of the RACS. For anaesthesia, training increased from three to four years in 1974 and to 5 years in 1985.^{4,6,7}

In 1965, training in intensive care was accredited, and in 1975, the Board of Faculty formed a Section of Intensive Care. This led the world by instituting a training programme in 1976, with the first examinations held in 1979. This was to last until the formation of the independent College of Intensive Care Medicine (CICM) in 2010.⁸

DEPARTMENTS

Many hospitals in the 1930s and 1940s had a Department of Anaesthetics, which was an association of anaesthetists on its honorary staff. The first hospital to establish a formal department with a director was the Royal Prince Alfred Hospital, Sydney, in 1930. Dr Mark Lidwill was the first Director and was also famous for being the first to inject adrenaline directly into the heart for chloroform complications in 1904 and the first to pace a human heart by direct electrical stimulation in the late 1920s to resuscitate neonates and for chloroform poisoning. He also designed an insufflation anaesthetic machine, which became the standard in many East Coast Australian hospitals from before WWI until just after World War II (WWII).⁹ Many anaesthetic departments in Australia today are among the largest staffed departments in university teaching hospitals.

ACADEMIA

It was recognised early that an autonomous Chair in Anaesthesia was strongly needed. Australian universities were interested, but as always, funding was an issue. Professor Robert Macintosh, Nuffield Professor of Anaesthesia at Oxford University, approached Lord Nuffield, who generously agreed to donate a fund to establish Australia's first autonomous Chair and Department of Anaesthetics at the University of Sydney. Dr Douglas Joseph was appointed in 1962.¹⁰

JOURNAL

In the 1930s, the ASA planned to submit anaesthesia publications to the *Medical Journal of Australia*. By the 1950s, this was proving difficult, and that journal did not provide for editorial comment. In 1954, an Australian anaesthetic journal was proposed within the ASA but floundered for more than a decade. It was realised in the late 1960s that it was now time for an anaesthetic journal reflecting research and developments in the Greater Pacific region. *Anaesthesia and Intensive Care* was founded in 1972, and the Founding Editor was Dr Ben Barry. It is currently the journal of the ASA, the New Zealand Society of Anaesthetists (NZSA), and the Australian and New Zealand Intensive Care Society.^{11,12} The journal is published by Sage with six issues per annum, including history and meeting abstract supplements. The other outstanding contribution to anaesthesia heritage is the historical cover notes in every issue which have been published continuously for over 40 years.¹³

AUSTRALIAN AND NEW ZEALAND COLLEGE OF ANAESTHETISTS

In 1992, anaesthesia and intensive care in Australia and New Zealand came of age with the formation of a truly independent Australian and New Zealand College of Anaesthetists (ANZCA) which included a Faculty of Intensive Care Medicine. This Faculty later separated from ANZCA, forming the CICM. Dr Peter Livingstone, the last Dean of the Faculty of Anaesthetists, became the inaugural President of ANZCA. The new headquarters of the College was officially opened in Melbourne on 19 February, 1994, by the Honourable Bill Hayden, AC, Governor-General of the Commonwealth of Australia.

In 1998, the Board of ANZCA established the Faculty of Pain Medicine (FPM), and the first fellowship exam was a year later. This exam was also available to fellows of the Royal Australasian College of Physicians (RACP), the Royal Australian and New Zealand College of Psychiatrists, and the Australasian Faculty of Rehabilitation Medicine, RACP. Professor Michael Cousins was elected the Foundation Dean of FPM.

In 2005, pain medicine was recognised as an independent specialty by the Australian Medical Council, and FPM was responsible for multidisciplinary education, training, and standards for pain medicine in Australia. In 2012, the Medical Council of New Zealand followed suit.

Today, ANZCA is one of the largest specialist medical colleges in Australia and New Zealand and the region's foremost authority on anaesthesia, pain medicine, and perioperative medicine. ANZCA offers training, research, and lifelong learning programmes and works closely with the governments, health care services, and communities in each country on a wide range of issues. It also plays a significant role in advancing global and indigenous health.⁷ In 2025, a Chapter of Perioperative Medicine was established. The ANZCA Annual Scientific Meeting is held every May. Currently, the College has over 5800 fellows and 1700 trainees in Australia.

RESEARCH

Research has been a key component of the development of anaesthesia in Australia, contributing to global knowledge in the specialty. Many research papers have been published in local and international journals for more than 130 years. Currently, several groups support research including ANZCA, the ASA, and the Society for Paediatric Anaesthesia in New Zealand and Australia.

The ANZCA Trials Group came out of the MASTER and B-Aware trials. The MASTER anaesthesia study was published in 2002.¹⁴ The Trials Group became the Clinical Trials Network in 2016 and is a recognised world leader in high-quality research that improves practice in anaesthesia, perioperative, and pain medicine. Major financial support has come from the ANZCA Foundation and Australia's National Health and Medical Research Council.¹⁵

QUALITY CARE/OUTCOMES

The first reports of Australian anaesthesia mortality in 1929 included death rates of 1:1010 (6062 anaesthetics) in Adelaide and 1:670 (55617 anaesthetics) and 1:975 (27290 anaesthetics) in

Melbourne. Anaesthesia mortality reporting first occurred in Australia in New South Wales in 1960 and was pioneered by Professor Ross Holland. This was one of the earliest compulsory anaesthesia mortality reporting systems in the world and was protected by parliamentary privilege.¹⁶ This paved the way for today's high standards of anaesthesia mortality reporting. ANZCA currently publishes *Safety of Anaesthesia: A Review of Anaesthesia Mortality Reporting in Australia and New Zealand*. The latest report for 2018–2020 showed 164 anaesthesia related deaths, 0.0016% of the 10495876 anaesthetics delivered (1:64000).

Before widespread computer and Internet use, complications tended to be reported in small specific audits, often at a departmental level. This limited data lacked power and did not reflect or influence widespread practice. WebAIRS stands for Web-based Anaesthetic Incident Reporting System. This was pioneered in 2009 and is an online reporting tool available to all anaesthetic departments in Australia and New Zealand. The system was developed by the Australian and New Zealand Tripartite Anaesthetic Data Committee (ANZTADC). ANZTADC's mission is to improve the safety and quality of anaesthesia for patients in Australia and New Zealand by providing an enduring capability to capture, analyse, and disseminate information about incidents (de-identified) relative to the safety and quality of anaesthesia in each country.

Australia is a large country with about 15% of the population now living out of the major cities. For about 200 years, from 1847, many rural general practitioners (GPs) provided anaesthesia and performed surgery as a normal part of their practice, often in conjunction with their colleagues. Many towns had GP anaesthetists providing anaesthetic services for local and visiting surgeons. Now a formalised training and accreditation system exists. This is administered by the Joint Consultative Committee of Anaesthesia, which has representatives appointed by ANZCA, the Royal Australian College of General Practitioners, and the Australian College of Rural and Remote Medicine.

GRANTS AND PRIZES

ANZCA and the ASA provide a range of research grants and specific prizes and awards for contributions and research in anaesthesia and pain medicine. Many of these honour pioneers of the specialty within Australia and beyond. These include:

ASA:

- Jackson Rees Research Grant,
- Kevin McCaul Prize,
- Jeanne Collison Prize, and
- Gilbert Troup Prize;

ANZCA:

- Renton Prize,
- Cecil Gray Prize,
- Barbara Walker Prize,
- Gilbert Brown Prize,

- Garry Phillips Prize,
- Stuart Henderson Award, and
- Robert Orton Medal.

SPECIAL INTEREST GROUPS

Anaesthesia Continuing Education is a partnership between ANZCA, the ASA, and the NZSA to promote and coordinate combined continuing medical education activities in anaesthesia and related disciplines. It manages 17 special interest groups that allow anaesthetists and others to study, report, and develop educational events in specific areas of anaesthesia in which they have an interest or skills.^{7,17}

DIVERSITY AND GENDER EQUITY

Anaesthesia was no different from medicine in general, with a very heavy male predominance for many generations. Today, over 36% of ANZCA fellows are female, with increasing proportions in successive cohorts. In line with shifting medical student demographics, 43% of ANZCA trainees and half of FPM trainees are women, and there is finally increasing representation as heads of departments, examiners, executive, and other roles.

CONTRIBUTIONS IN THE GREATER PACIFIC AND SOUTHEAST ASIA REGION

The anaesthetists of Australia and New Zealand have provided extensive clinical, educational, and other support to the many low and middle-income countries (LMICs) in the Greater Pacific and Southeast Asia since WWII. These countries include Fiji, Papua New Guinea, Timor Leste, Mongolia, Bhutan, Myanmar, Cambodia, Laos, Vanuatu, Indonesia, Samoa, Nauru, Cook Islands, Solomon Islands, Vietnam, Federated States of Micronesia, and some LMICs in Africa, e.g., Namibia.

Expatriate physician anaesthetists worked in the Pacific from the early 1960s.¹⁸ ASA members within World Federation of Societies of Anaesthesiologists (WFSA) and the Overseas Development and Education Committee of the ASA have had many initiatives in these countries for nearly 50 years. Support has also occurred for nonphysician anaesthesia providers (NPAPs) who provide up to 70% of anaesthetic services in some LMICs in the region. Current support has been both in-country and facilitating external attendance at international conferences and fellowships (both clinical and observer). Many of these countries rely heavily on NPAPs, and these are also supported.^{19,20}

This has occurred through several working groups, committees, and bodies:

- Overseas Development and Education Committee, ASA;
- Global Development Committee, ANZCA;
- Global Health, RACS;
- Lifebox Australia and New Zealand (ANZ);
- Other charitable groups and foundations, e.g., John James Foundation, Australian Volunteers Abroad;
- Other nongovernment organisations, e.g., International Committee of the Red Cross, Médecins Sans Frontières, Interplast; and

- Defence force medical mobilisation and the Australian Medical Assistance Team (AusMAT) for the frequent natural and other disasters in the region.

THE WORLD FEDERATION OF SOCIETIES OF ANAESTHESIOLOGISTS

The ASA was one of the original 26 organisations present at the inception of WFSA in 1955, and ASA members have been office bearers at all levels and attended all World Congresses of Anaesthesiology (WCAs) since. The ASA provided support for WFSA Anaesthesiology Centre Western Pacific in the Philippines and started the ASA Action Fund in 1971 for support within the region.⁶ In 1970, the Third Asian-Australasian Congress was held in Canberra, and in 1984, the ASA hosted the Post WCA in Manila meeting in Sydney. In 1996, the 11th WCA was also held in Sydney. This was the largest WCA in the history of WFSA and the largest medical conference ever in Australia at that time with 10000 registrants and industry representatives.²¹

Australians have held and continue to provide key roles at high levels, including Council, within WFSA^{6,21}:

- Dr TC Kester Brown, President 2000–2004;
- Dr Roger Bennett, Vice President 1964–1967;
- Prof Doug Joseph, Vice President 1976–1980; and
- Dr Ben Barry, Vice-Presidents 1984–1988.

WFSA is the key anaesthesia organisation liaising with the World Health Organization (WHO), and Australian anaesthetists have been closely involved with all developments.

ESSENTIAL PAIN MANAGEMENT

Essential Pain Management is an internationally recognised pain medicine training programme, initially founded within ANZCA and now co-branded with WFSA. It was proposed in 2009 by Drs Roger Goucke and Wayne Morriss. The first pilot programme was run in 2010 in Papua New Guinea and was designed to be an interactive course that improves knowledge about pain, provides a simple framework for managing pain, and explores ways of overcoming pain management barriers for all health care workers. To date, courses have been held in over 60 countries and have been translated into seven languages.²²

LIFEBOX AUSTRALIA AND NEW ZEALAND

Lifebox ANZ is the Australian and New Zealand entity of Lifebox that comprises representation from ANZCA, ASA, NZSA, the Lifebox Foundation, and until 2024, Interplast. This group was founded in 2015 to promote fundraising in the region for distribution of Lifebox oximeters and other initiatives to LMICs within the Asia-Pacific region. To date, over 1000 Lifebox oximeters have been donated within the region to countries like Papua New Guinea, Cambodia, Fiji, Kiribati, Myanmar, Philippines, Laos, Bangladesh, and other LMICs.²³

The other pillars of Lifebox include the WHO Surgical Safety Checklist, the Clean Cut Programme, and strengthening surgical teamwork. More recently, the global capnography programme has led to the development of specific combined capnograph/pulse

oximeter to allow for safe anaesthesia. To date, 50 of these have been distributed to Papua New Guinea and Cambodia.

COVID-19

As in other parts of the world, anaesthetists were integral to the Australian public health response to the COVID pandemic, with intubation teams and working in intensive care units treating large numbers of critically ill patients. They were also largely involved in managing the other sequelae of blowouts in elective surgery waiting lists. As elsewhere, very significant concern existed for contracting severe forms of COVID or passing it on to their families.²⁴ Australian anaesthetists were also involved in providing some support to LMICs within the region through AusMAT teams, development of appropriate oxygenation protocols where mechanical ventilation was not possible, and remote education for LMICs in the wider Pacific.²⁵ The history of these involvements will be studied well into the future.

SUMMARY

Australian anaesthetists have been major contributors and leaders in the development of our speciality both nationally but, more importantly, internationally for over 100 years. Australia is indeed fortunate that the history of our development is preserved in the Geoffrey Kaye Museum at ANZCA in Melbourne and the ASA heritage collection of the Harry Daly Museum, the Richard Bailey Library, and the Gwen Wilson Archives in Sydney.

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