

The Intensive Care Workforce Summit

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The College of Intensive Care Medicine (CICM) of Australia and New Zealand was established in 2008 and formally assumed responsibility for training and certification of intensive care specialists from the Joint Faculty of Intensive Care Medicine (JFICM) on 1 January 2010.¹ Although formal intensive care units were established in Australasia in the 1950s and 1960s, vocational training in intensive care only began in the 1970s. Over the past 40 years, there has been a steady expansion of the scope and practice of intensive care medicine. Expansion of ICUs has followed advances in understanding of the pathophysiology of multiple organ dysfunction syndrome, and in the development of new therapies and technology which can be provided safely only within the ICU. The availability of a distinct and well defined training program, coupled with increasing demand for fully trained specialists, has led to a steady increase in the workforce supply over the past 30 years.

One of the original publications about the intensive care workforce in Australia was the Australian Medical Workforce Advisory Committee report, published in 1999.² After a detailed analysis of several sources of data and a survey of Fellows and trainees, the Committee concluded:

... that the workforce is currently undersupplied and that trainee intake will need to be boosted to reduce this shortfall. The Working Party believes the key factor influencing future supply and requirements will be hospital role delineation and available intensive care infrastructure.

Concerns about a general medical workforce shortage were echoed in other reports published a few years later.^{3,4}

Before 2005, there was still a significant dependence on international medical graduates (IMGs) for specialist service provision. In an effort to boost trainee numbers, the JFICM modified the regulations to facilitate dual training (for trainees wishing to do other training programs simultaneously) and to facilitate entry of IMGs into the intensive care training program. The result was that there was a marked increase in the number of trainees who subsequently went on to complete the Fellowship exams of the JFICM and become fully qualified intensive care specialists. Early indications that this approach was effective were noted in a report on medical staffing trends of ICUs in Australia and New Zealand.⁵ In this report, data were collected using annual surveys for the financial years 1999–2000 to 2005–06 to compare the proportion, number and full-time equivalent (FTE) positions of intensivists and other specialists working in intensive care medicine. Across all levels of ICUs,

ABSTRACT

In the past 5 years, there has been a significant rise in the number of trained and fully qualified specialists in intensive care medicine. Recent concerns about saturation of specialist employment opportunities and the prospect of new Fellows unable to find appropriate employment after completion of training has brought intensive care workforce issues to the forefront. The board members of the College of Intensive Care Medicine (CICM) and Australia and New Zealand Intensive Care Society (ANZICS) held the Intensive Care Workforce Summit with presidents of other medical colleges, government officials and legal experts. Current data were presented on College trainee numbers and graduates and compared with similar data from other colleges. Results of workforce surveys of intensive care units and recent CICM graduates were also presented. Projections of future workforce requirements are notoriously uncertain but there was clear agreement among the group that currently, the employment opportunities for new Fellows at consultant level are limited. Recent changes to the selection process for new trainees have had a dramatic impact on the number of new trainees in 2014 but the enduring effect of this is yet to be determined. The group discussed potential growth areas for employment of intensive care consultants, including changes in employment patterns and also the impact of reduced numbers of trainees on unit staffing. CICM and ANZICS have agreed to continue to monitor and discuss the situation on a regular basis.

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there was a significant increase in both intensivist numbers and proportions of fully qualified specialists in intensive care compared with other specialists in ICU, such as anaesthetists. Rural and provincial ICUs were now staffed adequately with fully trained and qualified specialists. The increase in specialist numbers also allowed the creation of jobs with specific areas of responsibility, such as organ donation and rapid response teams.

In the past 5 years, there has been a significant rise in the number of trained and fully qualified specialists in intensive care medicine, but this increase has not been accompanied by a parallel increase in or availability of specialist jobs. Two surveys of recently qualified specialists showed that there

was a significant proportion of Fellows who may be underemployed.^{6,7} There was also a trend towards part-time employment. Thus, recent concerns about saturation of specialist employment opportunities and the prospect of new Fellows unable to find appropriate employment after completing their training has brought intensive care workforce issues to the forefront. Questions have therefore been raised about workforce planning to match the output of the training program with available job opportunities, which will have implications for the optimal number of trainees that the CICM should train in order to match demand.

Aims

To examine these important workforce problems, the CICM and the Australian and New Zealand Intensive Care Society (ANZICS) hosted the Intensive Care Workforce Summit to:

- review the current registration and training completion status of trainees registered with CICM
- obtain comparative data on trainee numbers from other colleges
- review the current employment status of new Fellows in Australia and New Zealand
- obtain data on potential future increases in intensive care specialist requirements in Australia and New Zealand
- review alternative models of trainee selection.

Methods

The Summit was held on 19 November 2014 in Melbourne and convened the following invitees:

- members of the CICM board
- members of the ANZICS board
- regional chairs of CICM
- regional chairs of ANZICS
- paediatric intensive care representative
- chief executive officers of CICM and ANZICS
- presidents of the Australian and New Zealand College of Anaesthetists (ANZCA) and the Australasian College for Emergency Medicine (ACEM)
- president of the Australian Medical Council (AMC)
- workforce division representative from the Department of Health
- editor-in-chief, *Critical Care and Resuscitation*
- senior intensivists from other ICUs, including an ICU with a 24-hour consultant roster.

Selected participants were assigned a specific topic to prepare in and provide a summary for. In the latter half of the day, four parallel workshops were held on selected topics.

Key findings

Summary report from national and regional surveys

CICM currently has 898 active Fellows (including overseas Fellows) and 594 active trainees. The Advanced Trainees:Fellows ratio is 0.44, substantially higher than most other colleges (see Table 1). With increasing numbers of trainees, concerns were raised about the ability to provide quality supervision, and about the diminishing access to anaesthetics training jobs. A small proportion of trainee positions were occupied by Fellows who remain employed as senior registrars in tertiary centres.

Compared with most other colleges, CICM has a high proportion of new Fellows graduating each year, although there is a high attrition rate. Only about 30%–40% of registered trainees go on to complete the full Fellowship of CICM. Recent changes to trainee selection have had a dramatic impact on new trainee numbers, with a substantial reduction in trainee registrations in 2014, although the extent to which this will continue is uncertain.

Based on surveys of new Fellows by CICM and of Fellows by ANZICS, about 22% of recent graduates are “underemployed” although these data need more exploration.

New public ICU positions are, increasingly, fractional appointments and visiting medical officer contracts are gaining in popularity. There has been a decrease in area-of-need positions across the regions. Some regional hospitals prefer to employ anaesthetists to provide cover for ICU, as it is more cost-effective than employing full-time intensivists. Work practices in some jurisdictions may result in an individual holding multiple appointments in different ICUs with a total commitment sometimes exceeding one FTE position. There is currently no oversupply of paediatric intensive care specialists.

Data from ANZCA suggest that they are also experiencing increases in Fellow throughput and report some underemployed Fellows, but ACEM reports that they do not have the oversupply of Fellows experienced by CICM and ANZCA.

Trainees naturally have expectations of employment as a specialist as part of their career progression. It is essential that trainees have access to better information to enable them to make individual career choices. Medical students and basic trainees are increasingly aware that ICU specialist jobs are scarce.

Summary report from the AMC, Department of Health (Health Workforce Division) and legal experts

Under consumer protection law, the College may not engage in conduct that has the purpose of restricting or limiting supply of graduates. The College sets the standards for training, including selection of trainees into the pro-

Table 1. Ratio of trainees : Fellows in the Australasian colleges for various specialties

Specialty	Australian Fellows, 2012	Admissions, 2012	Advanced trainees, 2013	Trainee : Fellow ratio
Emergency medicine	1340	135 (10.0%)	1339	1
Intensive care medicine	640	56 (8.7%)	281	0.44
Paediatrics	2325	146 (6.3%)	556	0.24
Anaesthesia	3815	229 (6.0%)	657	0.17
Adult medicine	7754	456 (5.8%)	1513	0.2
Obstetrics and gynaecology	1559	81 (5.2%)	159	0.1
Surgery	4467	217 (4.8%)	983	0.22
Ophthalmology	822	38 (4.6%)	90	0.11
Psychiatry	3073	136 (4.4%)	418	0.14
Dermatology	487	20 (4.1%)	49	0.1

gram, and selection criteria may have the effect of limiting the numbers of trainees entering the program, but the process must be fair and transparent.

Workforce planning is not solely the responsibility of the College. Government, hospitals and others have a stake in determining health workforce planning and the number of vocational trainees. The AMC's main concern is that the College's stated criteria for selection into the training program are fair and align well with the suitability for intensive care training, and are consistently applied across all jurisdictions.

Summary report from workshops

Predicting future demand for graduates is complex and subject to great variation. Retirement and migration patterns are hard to predict, and future increases in ICU bed numbers, rostering arrangements and expanded roles, etc, are also complex and difficult to forecast accurately. There is likely to be demand for an increased number of ICU specialists in the future (overall population growth and ageing will ensure this) but accurately quantifying this on available data and economic predictions is impossible.

A reduction in the number of trainees entering the program may have an impact on unit staffing. The potential consequences include:

- the need to develop a second-tier qualification at a "hospitalist" level
- difficulty in filling all registrar positions at some hospitals
- working with other colleges to increase the requirement for ICU training time in other specialist programs (eg, cardiology and respiratory medicine) may assist with this
- changes to rostering and on-call arrangements for consultants
- an increase in the number of career medical officers working as registrars in ICUs.

Unit staffing is the responsibility of hospitals, not the College. In a situation of permanently reduced trainee numbers, jurisdictions and individual hospitals would need to come up with strategies to ensure adequacy of staffing.

There is the potential to develop regional training programs, where trainee selection, progress and training rotations (eg, through anaesthetic, medicine and rural terms) are monitored and directed locally. In some cases this could be statewide (or even multistate) and in other larger states, more localised.

Demand for the non-ICU components of training (eg, anaesthetics) and access to the specific clinical components of ICU training (eg, trauma) may restrict trainee numbers because of the limited availability of those placements. The current trend to fractional appointments is a concern. If the trend continues it would suggest that Fellows with dual qualifications will be more likely to obtain full-time employment by a single hospital.

Discussion

This is the first summit held by CICM and ANZICS to address workforce issues. The key findings are that projections of future workforce requirements are notoriously uncertain, but there was clear agreement among the group that current employment opportunities for new Fellows at consultant level are limited. Recent changes to the selection process for new trainees have been associated with a dramatic reduction in the number of new trainees, from 334 in 2013 to 55 in 2014, but the enduring effect of this is yet to be determined.

Several recent publications have outlined global workforce issues with an estimated shortage of 4.3 million health care professionals.^{8,9} Despite an increased intake of medical students in Australian universities, it is projected that there will be a shortage of doctors until 2025.

The figures do not suggest an absolute shortage of intensive care specialist numbers in Australia and New Zealand currently, but there are ICU staffing discrepancies between rural and metropolitan areas. These conclusions are based on current data and do not assume changes to ICU scope and practice in the future. These data are also consistent with ICU workforce projections in resource-rich countries such as the United States, as well as in resource-poor countries.¹⁰⁻¹² Alternative staffing models in ICUs in the US have challenged the notion that there is a critical care workforce shortage.¹³

Several issues may influence the number of intensive care specialists required in the future, eg, increases in ICU bed numbers; requirements of hospitals and jurisdictions for intensivists to work shifts providing 24-hour cover; and the increasing role of intensivists outside the ICU, such as in retrievals and perioperative medicine, may increase the demand for the workforce. These projections do not take account of retirement plans of intensivists, healthy and sustainable work patterns for the “ageing intensivist”¹⁴ and higher rates of burnout among intensivists.¹⁵

In summary, this summit highlights an emerging area for ongoing attention, and has provided CICM and ANZICS with baseline data and a framework on which to plan future summits. CICM and ANZICS plan to host regular summits to discuss workforce issues and ensure appropriate trainee selection processes, maintenance of training standards and satisfactory career progression for those choosing a career in intensive care medicine.

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Competing interests

None declared.

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Corrections

In “*History of mouth-to-mouth rescue breathing. Part 1*” in the September 2005 issue of the Journal (*Crit Care Resusc* 2005; 7: 250–7) and in the 2 June 2007 special edition “*Ronald Trubuhovich — Collected Publications from Critical Care and Resuscitation*”, there were some errors.

Text: on page 251, in the second paragraph of the left column, “1791” should read “1847”. On page 251, in the fourth paragraph of the right column, “1791” should also read “1847”.

References, pages 256–7: reference 5 should read “Burgon JW. Lives of twelve good men. London: John Murray, 1888: 72-3; reference 9 should be reference 10; reference 10 should be reference 11; reference 11 should be reference 12; reference 12 should be reference 13; reference 13 should be reference 9; reference 23 should be reference 24; and reference 24 should be reference 23. □