Smarter, Safer, Stronger

Lessons from international models of prevocational medical education

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Churchill Fellow 2011
healthy citizens are the greatest asset any country can have

- Winston Churchill -
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Executive Summary

This Churchill Fellowship examined three international models of prevocational medical education. Australia’s current model of prevocational education is very similar to previous models used by the UK and Canada. Both of these countries, however, have moved significantly away from that model for different reasons and have either strengthened or abolished the prevocational period.

In each of the prevocational models the three primary areas evaluated were quality education, vocation selection and length of training. A number of conclusions were made regarding potential areas of improvement to Australia’s prevocational medical education system. These include

1. All junior doctors in Australia should be in a prevocational or vocational training program;
2. A prevocational curriculum or curricula with defined purpose and outcomes should be developed;
3. Vocational college training programs should not require “pre-requisites” for entry once a junior doctor has completed general prevocational training;
4. Service registrar positions should be abolished or converted to training positions; and
5. There should be a maximum of three years prevocational experience before entry into vocational training.

Changes in line with the above conclusions would have a significant impact to prevocational medical education in Australia from an educational, patient safety and workforce perspective. The large numbers of medical students entering prevocational and vocational training necessitates novel solutions to accommodate them and ensure that the community receives the full benefit from the increased number of medical school graduates. Creating a more streamlined medical training system will also lead to a consultant-led service, as has been seen in the UK and Canada, with potentially greater patient safety and satisfaction.
Introduction

This Churchill Fellowship was awarded to evaluate established models of postgraduate prevocational medical education in the United Kingdom (UK), Canada and the United States of America (USA). The Winston Churchill Memorial Trust was established in 1965 and awards Memorial Fellowships, known as ‘Churchill Fellowships’, to provide an opportunity for Australians to travel the world and further their knowledge in their chosen field, before returning to make a real contribution to Australian society.

With internship standards being reviewed and developed at the moment, it is useful to discuss the limitations of the Australian system and the different models used overseas. Length of training, generalist skills, trainee choice, societal expectations, workforce pressures and flexibility are all factors that influence the various models of medical education. A clear pathway to becoming a fully qualified doctor is seen as one of the big advantages to the North American system, while the UK promotes its prevocational curriculum as the foundation for generalism before specialising.

Traditionally, the Australian internship comprises five rotations. Three of these must be in medicine, surgery and an emergency care setting. If an intern receives satisfactory reports from all of these core rotations, then they are considered a safe practicing doctor and receive their full registration from the Medical Board of Australia, and can theoretically enter vocational training. However, many specialty colleges in Australia have prerequisites for entry that preclude a trainee from entering immediately following internship. No specialty college in the UK, Canada or the US has prerequisites for entry. All junior doctors in these countries are considered fit for vocational training as generic pluripotential trainees.

From a patient safety perspective, few countries other than Australia allow for “service” jobs to be done by trainees. Service positions are at the level of a vocational trainee without being accredited for vocational training. The concept of a doctor that isn’t fully qualified working outside of an accredited training program and accredited positions is completely foreign and considered dangerous for the trainee, consultant and patient. By not offering service positions, these countries have eliminated the problem of junior doctors doing multiple service years to get competitive rotations. This has significant workforce advantages, as when service jobs are changed to trainee jobs, more trainees become consultants every year and the bottleneck is alleviated.

From an educational, patient safety and workforce perspective, the prevocational medical education system in Australia needs to change. This report reviews the different models of education used in the UK, Canada and the USA. Each model holds at its core some underlying principles that should be considered for adoption in Australia, as they have had a positive impact on medical education systems and healthcare practices overseas.
**Historical Background**

**United Kingdom**

There has been a tremendous change in the way prevocational medical education has been conducted in the UK in the last 10 years. There has been a move away from the traditional House Officer and Senior House Officer years to a more structured and streamlined approach to junior doctor training.

Before 2005 medical school graduates in the UK would undertake a Pre-Registration House Officer (PRHO) year. This year consisted of six months of Internal Medicine and six months of Surgery. At the end of this year, the graduates would receive general registration. One of the major criticisms of the PRHO year is that “if you smiled and stayed alive you would register in England”. The year also had a significant service component and was criticised for not giving graduates enough education and training. Further, graduates did not gain exposure to specialties with workforce shortages such as general practice and psychiatry.

Following the PRHO year junior doctors would typically work as a Senior House Officer (SHO) for 2-3 years, or occasionally longer, before applying to a vocational training program. This meant that in England about half of all doctors in training were SHOs.

Sir Liam Donaldson wrote a report in 2002 called Unfinished Business, where he called for the creation of a two-year program for prevocational doctors. SHOs at the time had poor job structure, poorly planned training and many other issues. Dealing with the increasing number of medical graduates and working towards a consultant-led service with the NHS was crucial, so a structured training pipeline was proposed. The proposed two-year prevocational program would have two key purposes:

- “to develop core or generic skills essential for all doctors [and] provide skills in those essential requisites of modern medical practice”; and
- “to provide direct experience of different specialties... and to gain experience in dealing with seriously ill patients”

Subsequently, Modernising Medical Careers (MMC) was introduced and provided a range of reforms including the introduction of the Foundation Programme in 2005. The Foundation Programme curriculum set a range of competencies that should be obtained over a two-year period. These competencies could be achieved in a range of specialty areas and there was no specific provision of the need for medicine or surgery in the program. Due to service demands, the first year of the Foundation Programme (F1) remained dominated by medical and surgical rotations, however over the years the heavy bias towards these programs has been slowly corrected as the service demand has changed.

In 2008 the MMC published a review of the Foundation Programme called Aspiring to Excellence, led by Sir John Tooke. The report criticised the lack of purpose surrounding the second year of the Foundation Programme (F2) and
called for it to be removed. In 2010 a second review, led by Professor John Collins, called Foundation for Excellence acknowledged that clinicians and junior doctors thought that the F2 year was very important, but its exact purpose was undefined, as full registration had already been attained.

Canada

Canada’s medical school graduates previously undertook a rotating internship upon the completion of medical school. This internship year comprised of six two-month rotations in major specialty areas.

In the late 1980’s and early 1990’s, with the introduction of the 2-year family practitioner vocational training program in Canada, there was a push to remove the rotating internship. This is because the College of Family Physicians of Canada felt that as the internship had previously qualified doctors for Family Practice, that this was no longer needed now that the vocational training program was established. Quebec in 1988 was the first province to abolish the rotating internship and made it impossible to gain a medical license without having completed a two-year Family Practitioner vocational training program. Eventually, all provinces in Canada followed suit.

Part of the Canadian medical culture is that Governments view training as a financial burden, thus they are continually looking at ways to decrease the length of training. The primary driver to remove the rotating internship in Canada was the political imperative to shorten the length of medical training and also increase the number of Family Physicians. It was thought that the general exposure usually gained during the rotating internship would be incorporated into the vocational programs under the Royal College of Physicians and Surgeons of Canada. This has not eventuated.

Between 1993 and 2004, the percentage of medical undergraduates across Canada selecting family medicine as their first choice specialty dropped from 44% to 28%. This inadequacy was exacerbated by reductions in the number of medical school positions across Canada in the 1990s. The loss of the rotating internship in 1993 has resulted in a cumulative loss of between 2500 and 3000 family physicians. As a result, there was an increasing appetite for returning to an internship model, and in 2004 the Canadian Medical Forum Working Group on a Common PGY1 discussed the advantages of moving towards a common postgraduate year 1 (PGY1) with general exposure. This was aimed at addressing the concerns of students seeking more time before they choose their postgraduate programs, as well as increasing the flexibility for residents changing from one program to another.

It was acknowledged that there existed a significant lack of evidence for a common PGY1 year. The Core Competencies Project (CCP) was then established which highlighted three primary recurring themes: Premature Career Decision Making; Inflexibility; and Quality Post Graduate Medical Education (PGME). The CCP then worked to assess whether people’s perceptions were actually correct.
Their conclusion, outlined in the Directions for Residency Education: *Final Report of the Core Competency Project*, did not call for a reintroduction of a common internship year but did highlight some avenues for improvement.

**Australia**

The Australian model of prevocational medical education is a product of evolution rather than design. The internship has largely been based around the successful completion of five terms, which must include medicine, surgery and emergency. The Confederation of Postgraduate Medical Councils (CPMEC) has developed the Australian Curriculum Framework for Junior Doctors (ACFJD) in recent years. This document provides a framework for the education of junior doctors in their first two years of training.

Many junior doctors do one or more years as a general resident medical officer (RMO). During these years they undertake rotations in areas in which they are interested in or are required for vocational entry. The majority of vocational colleges have eligibility requirements for application that often take one or more years to acquire.

Beyond general RMO years, many trainees (particularly in surgery) become service registrars. Service positions are at the level of a vocational trainee without being accredited for vocational training. Although the registrar works under the supervision of a consultant (the same as in an accredited position) there is no guarantee of education, career progression or pastoral care. People can often stay in these positions for a number of years while they apply for a specialty.

Since the mid 2000s there has been a significant increase in the number of medical graduates in Australia. This year there has been difficulty in finding internship positions for all of these graduates and there is a growing concern regarding a lack of RMO and vocational training positions. Finding new ways to deal with this growing problem that does not diminish the high quality of Australia’s medical training is of high priority.

**Aim**

The aim of my Churchill Fellowship Award was to evaluate established models of postgraduate prevocational medical education in the UK, Canada, and the USA with a view to contributing to the discussions on prevocational training in Australia.
Methods

In developing this report, conversations were held with individuals and organisations around Australia who have a particular interest in prevocational medical education. These discussions were aimed at establishing the major issues of prevocational medical education in Australia to help define the scope of the project. A literature review was then undertaken to help tailor the questions for each country and gain background into the development of the different systems used between the countries.

Semi-structured interviews were held with individuals and groups in the UK, Canada and the USA over a period of six weeks. These interviews and focus groups explored the following areas:

- Vocation Choice and Satisfaction
- Educational Quality
- Transition
- Length of Training
- Academic Medicine

All interviews were recorded using a Livescribe Echo Pen. Notes were made during the interviews. An outline of the people who were interviewed can be found in the Appendix. It should be noted that many informal conversations at meetings and conferences in Australia and overseas also contributed to this report.
Educational Quality

Purpose

In the UK, there is a feeling amongst doctors and academics that the Foundation Programme gives doctors the competence, and more importantly, the confidence to undertake vocational training. Despite the questions raised in the Tooke and Collins Reports, junior doctors and academics feel that the critical purpose of the second year of the Foundation Programme is to build confidence of junior doctors in their abilities before they enter a vocational training scheme.

<table>
<thead>
<tr>
<th>Purpose of the Foundation Programme</th>
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<td>Set a standard for medical school graduates</td>
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<td>Provide a curriculum for prevocational medical education</td>
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<td>Give junior doctors exposure to a range of specialties and increase applications to “hard to fill” specialties</td>
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<td>Streamline medical training</td>
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<td>Increase the academic presence in prevocational training</td>
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<td>Provide adequate preparation for entry to vocational training</td>
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The presence of a prevocational program with defined competencies ensures that junior doctors have a period of general applied knowledge and skills before entering vocational training. Junior doctors debated if they would retain knowledge acquired during this period long-term. All agreed however, that it was desirable in terms of building confidence prior to vocational training and allowing junior doctors to have a broad exposure to specialties before application to vocational training places. It is generally accepted that although a small proportion of graduates from medical school will already have decided what they would like to do as their specialty vocation, most graduates like to have some experience working in a particular area before choosing it as a vocation.

Competencies and Generalism

The Foundation Programme outlines a range of competencies (soon to be called outcomes, as of August 2012) that a trainee must fulfill during their program. These outcomes do not relate to specific rotations, but are more aimed at ensuring that the junior doctor has a good general experience.

Although there are no core rotations as part of the curriculum for the Foundation Programme, there does exist legislation necessitating that all junior doctors undertake a rotation in medicine and a rotation in surgery. This however is historical overhang.

Initially, the competencies grew out of meetings with vocational colleges and medical schools. They were not evidence-based but rather best opinion of the time. These were later refined and increased overtime.
The number of competencies grew to almost 190, which the Graduate Medical Council (GMC) argued should all be completed. The Foundation Programme Office had conceived the competencies as guidelines to what could be achieved, but the competencies did not individually need to be ticked off. Having too many compulsory competencies makes it too onerous for trainees. Some trainees reported that the focus on competencies took away from their learning on the job.

It is widely acknowledged in the UK that the Foundation Programme does not exist for the attainment of general registration. General registration with the GMC aims to ensure that doctors are safe practitioners and is obtained after one year. This is despite the fact that the Foundation Programme is a two-year program. There exists a distinct separation in the UK between registration requirements and training requirements. Trainees see questionable value in gaining general registration at the end of F1 as they still are required to complete F2 in order to progress on to vocational training.

The change from core rotations to competencies did not result immediately in a significant change to F1. This was due to the heavy reliance of medical and surgical units on first-year graduates for service provision. Over time however, there has been a gradual shift towards a more diverse range of rotations covered in the Foundation Programme. The program is designed so that competencies can be met without necessarily doing a medical or surgical rotation.

In Canada, vocational training competencies have been developed from the CanMeds framework and are linked back to that framework. These are individualized for each vocation. Although there exists core rotations with many vocational training pathways, there is a significant emphasis on competency for trainees. These competencies are linked with the CanMeds framework, as are medical school competencies.

When the internship year was removed in Canada, it was initially thought that the first year of vocational training would still include much general experience. Although this may have been the case initially, vocational training in Canada is now relatively specialised in the first year. This is likely due to specialists in their field not valuing generalism, and their training programs being based on competencies that do not have a heavy general base. The question arises that if the specialists do not value generalism as part of their vocation, should this still be valued by trainees?

In the USA most trainees go directly into vocational training programs from medical school (similar to Canada). For trainees who do not know what they want to do however, there exists a rotating internship which includes three months of medicine and surgery, two months of emergency and four months of electives. A rotating internship year, also known as a “transitional year”, is required for certain vocational training programs that have limited exposure to medicine and surgery (e.g. anaesthesia, radiology and ophthalmology).
Term Length

In the UK, the length of the terms is 4 months, which differs greatly from Australia. In discussions with Foundation doctors about the length of the terms, many report that it is a steep learning curve at the beginning of each rotation and it takes them two to three months to ‘find their feet’. For the remainder of the rotation, they feel confident in their role and are able to work quite productively. This building of confidence in the later part of the rotation comes at the cost of a flattening of the learning curve.

Vocation Selection

Specialty Exposure

In the UK, the idea of ‘tasters’ came from junior doctors who wanted a brief experience of specialties that they were considering for vocational training. Despite there being a significant amount of interest in the program prior to its commencement, there has been limited take-up by junior doctors. This may be due to tasters having to occur during the junior doctor’s leave. Tasters can take place in any specialty and go for one week. The junior doctor is supernumerary on the team and is thus able to be exposed to areas of the specialty that the ward doctor might not otherwise get exposure to.

The Canadian residents and physicians indicated that part of medical school training is giving students exposure to a wide range of specialties. In Canadian medical schools there are 12 to 15 weeks of electives for students to spend time in an area that they may be interested in. The problems highlighted by trainees were that if someone wanted to get into a competitive specialty such as ophthalmology, then as a medical student they would need to do research in that discipline in their first year or two. This is because applications for electives are competitive in many medical schools and thus a person needs to do research to even be considered for an elective in these specialties. Thus, when a student applies for vocational training in their final year at medical school, if they haven’t done research and electives in ophthalmology then there is almost no chance at getting a job in that area.

Trainees in Canada see this requirement of early streaming in order to get into competitive specialties as a significant caveat of not having a prevocational period and time to get exposure to a wide range of specialties.

Choice of Vocation and Satisfaction

It is recognised in the UK that a single year internship would not allow for junior doctors to experience a wide range of vocations before selecting their specialty.
pathway. This is because applications to vocational training occur early or in the middle of the year. Making the application for vocational training in the second year of the Foundation Program allows junior doctors to experience a wider range of specialties prior to submitting their application for training positions. It must be acknowledged that four-month rotations mean that even after two years, Foundation trainees usually only experience four or five specialties before having to make a choice of vocation. Trainees believe that this is much better than if they had to make the choice in their first year, when they may have only experienced one or two specialties.

The small number of people in the UK who do not receive their vocation of choice and wish to try again for their training program of choice either do research, locum or go to work in Australia in the interim. Most trainees however, will preference different training programs in a single area rather than the same training program in different areas. This is reportedly due to factors such as family and friends being a significant priority for junior doctors rather than purely vocation selection.

In Canada students choose their vocation during medical school. The 2008 Core Competency Project survey data revealed that while 90% of residents were ‘somewhat’ or ‘very satisfied’ with their chosen career discipline, 37% of residents had considered switching specialty. In actual switches however, only a proportion of the 5% who were ‘somewhat’ or ‘very dissatisfied’ tried to switch and among this subgroup, 100% were able to switch. Interestingly, the satisfaction of residents with their chosen career discipline mirrored that of graduated and practicing physicians. The number of residents who had considered switching specialty had not changed since a survey in the year 2000 by the Canadian Association of Interns and Residents. No data exists as to the number of residents who did switch specialty that year.

Many Canadian residents report that there are significant barriers to switching vocations. Most importantly, it appears logistically arduous. Firstly, a trainee must find someone to swap with in the specialty that they want to train in who is both at the same stage in their training and willing to make a swap. Secondly, they must then get approval from each of their supervisors to be able to swap. The 2008 Core Competency Project survey data revealed that residents’ reported barriers included the ability to transfer credit and the number of funded residency positions.

There seems a discrepancy between the data from the Core Competency Project and the residents’ perceptions. Compared to the Foundation Programme doctors of the UK, the Canadian residents certainly appear more apprehensive and uncertain about their vocation choice and perceive significant barriers to switching disciplines.

In the USA, for graduates who do not go into a vocational training program from medical school, common pathways include doing a transition year, undertaking a year of research and applying again or working in an ancillary position as a technical assistant.
Length of Training

This recognition of a social responsibility in training doctors, acknowledges the need for training to be as high quality and efficient as possible. Both in the UK and in Canada, there appears to be acknowledgement of the imperative to have as many trained doctors working in the national system as possible. This has led to a streamlining of education in both of these countries to ensure that trainees become fully qualified doctors as quickly as possible.

United Kingdom

The length of medical training is a significant issue in many countries around the world. Governments and communities want fully trained practitioners working as quickly as possible, but also want them to be trained well.

Sir Liam Donaldson in his report suggested that a two-year prevocational program would allow a shortening of vocational training. This does not seem to have occurred in any of the Royal Colleges in the UK.

Before the Foundation Programme, many junior doctors would spend years being a senior house officer before progressing to specialty training. In fact, this was perceived to be a significant problem as it increased the amount of junior doctors working in the health care system and delayed their progression to specialty training.

In order to overcome this, there seems to have been a number of changes, which have meant that junior doctors overwhelmingly apply for vocational training during their F2 year. There is some discrepancy as to which changes brought about this culture, however the following mechanisms were postulated as having an impact:

1. All colleges are able to accept graduates from F2 into vocational training.
2. Application for all colleges was limited to every 12 months (i.e. there was no mid year intakes).
3. Non-vocational rotations did not contribute towards specialty college admissions. Furthermore, these rotations were considered to have no future with no ‘sign-off’ to show one had completed them. Vocational colleges used a matrix of experience, which takes into account a person’s experience in time, rather than total experience.
4. The first part of the college exams could be sat during F2.
5. The salary was considered not to be an issue as employers tend to increase pay each year despite no increase in training.

Removing the SHO years was highly problematic in the UK. This was perceived as being due to the national application system not being ready; the transition of many non-training places to training places in a single year; a lack of information
for applicants about what would be required of them; and applicants considering it to be “do or die” in terms of their future career. It seems that now trainees are happy with the national system of application for vocational training as they see it as efficient and fair.

Initially, people didn’t like that they were disqualified from training by too many years at service posts. Now that people understand the system and it has been running for a few years, there seems no overt dissent. There seems to now be a feeling that one can only apply for a vocation two or three times before they are forced to choose another specialty. Academics argue that although some junior doctors believe that they are “born to be an orthopaedic surgeon”, this is of course not the case.

MMC also stated at this time that trainees not in vocational training programs can do either Locum Appointment for Training (LAT) or Locum Appointment for Service (LAS), which are not signed off, can’t count towards college applications and have no future. This meant that undertaking service years did not advantage an applicant when applying for their preferred profession.

The UK system has meant that the training of doctors is more streamlined, whilst still maintaining some options for people to apply for specialty training more than once. Although initially the 2 years general experience was thought to be able to shorten vocational training, this does not seem to have been the result. Despite this, foundation trainees report that the Foundation Programme provides excellent general experience that would be worthwhile in their later training.

**Canada**

In Canada, the length of training is a very political issue. There seems to have been two main drivers behind the removal of the internship year. Firstly, the introduction of a family medicine training program removed the need for rotating internships to produce doctors ready for practice in the community. Secondly, there was a political push for medical training in Canada to be shortened.

Short training programs are seen as a good thing in Canada. They report that they are proud to have the shortest family medicine training program in the world. There are very few locum or service positions and there is a push to become qualified quickly.

**USA**

The average debt for medical graduates in the USA is US$200,000. Although this debt does not need to be paid off until the end of training, the debt continues to accrue interest. This financial pressure does not allow many trainees to take time off and means that trainees value the streamlined nature of the training model in
the USA. The model gives very clear pathway and promotion criteria to graduation point. The weaknesses reported by trainees are that everyone progresses, as the system is overly rigid and does not allow for people to repeat years or fall behind.

Transition

United Kingdom

It is widely acknowledged that the most significant change instigated by the introduction of the Foundation Programme was to medical schools. Defining the clinical skills that graduates should have acquired prior to entering the Foundation Programme necessitated medical schools to change their curricula in order to prepare their graduates for the Programme. It should be noted however, that if an individual is deficient in one or more clinical skills, this does not necessarily preclude them from entry into the Foundation Programme.

Trainees do not see the jump from medical school to junior doctor as a significant step in the UK. Many believe that the changes to medical schools, brought about by the Foundation Programme entry requirements, has helped make medical school graduates more workplace ready and thus made the transition easier for them.

Canada and the USA

Transition from medical school to vocational training in Canada is perceived by many in other countries to be a significant step up for trainees. Trainees in Canada however report that students at the end of medical school usually undertake a six-month clerkship. A clerkship involves writing medication orders, scribing notes on ward rounds, and taking an active role in the management of patients. The involvement and expectation of medical students in these clerkship roles seems to be greater in Canada compared with those students in Australia who undertake internship rotations in their final year or six months.

Academics from both Canada and the USA report that there was a push back to medical schools to produce better graduates that were ready for vocational training. The primarily private system in the USA requires that the attending, otherwise known as the consultant, is responsible for the patient. In order for the attending to be paid, they are required to review patients personally and sign for everything. This necessitates a high level of support from senior physicians for trainees who have recently graduated.
Academic Medicine

UK Academic Foundation Programme

The Academic Foundation Programme has recently been created in the UK to allow junior doctors with an interest in clinical academia to undertake part of their training in academic medicine. This was due to the absence of clinical academia during prevocational years, despite a strong presence in undergraduate and vocational training programs. Further, there has been a significant reduction in the number of clinical academics over the years and this program aims to assist in correcting this. Whilst the Academic Foundation Programme includes the competencies required of the Foundation Programme, there are additional competencies relating to clinical academia that are required of graduates of this program. This program allows foundation doctors to undertake research, educational activities or leadership and management as part of their prevocational education.

This is administered at a deanery level and there is significant variation in how this is delivered across the country. For example, some deaneries give their doctors a four-month period in order to undertake their Academic Foundation Programme. Others however, give students a number of individual days over the two years to complete it. Despite the variation, to complete a successful Academic Foundation Programme the doctors must attain the outcomes specified.

Junior doctors universally think that the Academic Foundation Programme is a good idea, and those who have undertaken it believe it to be a worthwhile experience. It does not appear that the significant variation across the deaneries causes any major issues. In fact, deaneries report that allowing this local control over the program is necessary to maintain adequate service delivery, teaching and supervisors. Although the majority of the Academic Foundation Programme places appear to be in research, there are also a number of places in education, but few in leadership or management positions.
Conclusions

The following conclusions, which could be taken as recommendations, are there to provide discussion points regarding how to improve prevocational medical education in Australia.

1. **All junior doctors in Australia should be in a prevocational or vocational training program**
   The concept of a doctor that was not fully qualified and not being in a training program bamboozled many people overseas. Junior doctors have high rates of medical errors, especially in the year following their internship year. An education and training organisation should be overseeing the education, pastoral care and career planning for all junior doctors. The obvious outlier with this is the career medical officer who does not progress to vocational training, although it is difficult to reason why this discipline does not require specific training or educational oversight.

2. **A prevocational curriculum or curricula with defined purpose and outcomes should be developed**
   Currently there are various skeleton intern curricula in Australia that are based around the medical board mandatory three rotations. An outcome based curriculum for prevocational trainees would help define learning objectives for trainees in not only internship but also Post Graduate Year (PGY) 2 and PGY3. Defining the purpose and outcomes of prevocational years helps provide clarity and guidance to trainees, teachers and supervisors. The CPMEC’s ACFJD is a document that could be expanded upon in order to achieve this.

3. **All medical schools should have a period of “pre-internship” which has significant responsibilities and expectations of students**
   In all three countries visited, there had been significant push back to medical schools to ensure that their trainees are work-ready. Many medical schools in Australia now do this, however final written examinations still occur just prior to graduation in some medical schools.

4. **Vocational college training programs should not require “pre-requisites” for entry once a junior doctor has completed general prevocational training**
   One of the main reasons for the delay of junior doctors being accepted into vocational training programs in Australia is that many colleges have prerequisites that must be obtain prior to application. For example, to be eligible to apply for orthopaedic surgical training a junior doctor must have completed 26 weeks of orthopaedic surgery, eight weeks of emergency and eight weeks of critical care. Achieving these prerequisites commonly take two years. This results in people having completed three years of training (including their internship) before even being able to apply to the orthopaedic training program. A vocational training program should be able to take any good pluripotential junior doctor and train them to be a consultant. A lack of experience in desirable disciplines
should not preclude a junior doctor from applying and just delays progression for trainees.

5. **Service jobs should be abolished or converted to training posts**

Service positions are at the level of a vocational trainee without being accredited for vocational training. Junior doctors working outside of an accredited training program and accredited positions is dangerous for the trainee, consultant and patient. By not offering service positions, these countries have eliminated the problem of junior doctors doing multiple service years to get competitive rotations. When this was done in the UK, consultants were forced to make the position a training position or risk losing their registrar. This has significant benefits to trainee education, workforce and patient safety.

6. **There should be a maximum of three years prevocational experience before entry into vocational training**

Junior doctors in Australia develop at various stages. Some apply for vocational training programs during their internship year and some will take more years to decide. Three years seems to be the point at which the vast majority of junior doctors have decided which vocations they would like to train in. Placing a barrier at three years for prevocational training means that people who continually apply for the same program cannot perennially take a junior doctor position. As someone once said “no one is born to be a cardiothoracic surgeon”. With limited positions for junior doctors in Australia, trainees must ensure they are progressing through training rather than sitting and waiting to enter a training program that they may or may not get into.

7. **A clinical academic pathway should be implemented that allows significant clinical experience with ongoing engagement in academic activities**

Allowing trainees to have some time to undertake research and educational activities during their prevocational education is an important step in fostering clinical academics. Academic pursuits are largely supported through undergraduate and vocational training however, there exists a gap in prevocational training. Quarantining a limited amount of time for interested prevocational trainees to pursue academic interests would be of significant value to the trainees and promote clinical academia.
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Appendix

Interviews

Australia

**Professor Justin Beilby**
President, Medical Deans of Australia and New Zealand

**Professor Paddy Phillips**
Chief Medical Officer, South Australian Health Department

**Mark Cormack**
Chief Executive Officer, Health Workforce Australia

**Professor Simon Willcock**
Chair, Confederation of Postgraduate Medical Education

**Professor Brendan Crotty**
Pro Vice-Chancellor (Health), Deakin University

**Mr Ian Civil**
President, Royal Australasian College of Surgeons

**Professor Geoff Thompson**
Former Chair, South Australian Institute of Medical Education and Training

**Professor Tim Wilkinson**
Associate Dean (Medical Education), University of Christchurch

**Tony Hyland**
Director Medical Training Policy Section, Health Workforce Policy and Data Branch of the Department of Health & Ageing

**Dr Joanna Flynn**
Chair, Medical Board of Australia

United Kingdom

**Professor Derek Gallen**
National Director, UK Foundation Programme Office

**Dr Stuart Carney**
Deputy National Director, UK Foundation Programme Office
Senior Clinical Adviser, Modernising Medical Careers
Registrar of the Academy of Medical Educators.

**Dr Clare Van Hammel**
Clinical Advisor, UK Foundation Programme Office
Foundation School Director and Associate Postgraduate Dean, Severn Deanery
Dr Ed Neville
Chair, AoMRC Foundation Programme Committee

Dr Tom Dolphin
Chair, UK Junior Doctors Committee at the British Medical Association

Professor John Collins
Chair, Foundation for Excellence

UK Foundation Programme Curriculum Committee

UK Foundation Programme Junior Doctors
Severn Deanery
East London Deanery

Canada
Dr Nick Busing
President and Chief Executive Officer, The Association of Faculties of Medicine of Canada

Dr Jason Frank
Associate Director, Specialty Standards, Policy and Development, The Royal College of Physicians and Surgeons of Canada (RCPSC)

Sarah Taber
Manager of Educational Strategy, Royal College of Physicians and Surgeons of Canada

Paul Rainsberry
Associate Executive Director of Academic Family Medicine, The College of Family Physicians of Canada

Adam Kaufman
President, Canadian Association of Interns and Residents

Canadian Residents
Toronto, Ontario (RCPSC and CFPC residents)
London, Ontario (RCPSC residents only)
Ottowa, Ontario (CFPC residents only)

United States
Mr John Nylen
Senior Vice President and Chief Operating Officer, Accreditation Council for Graduate Medical Education International

Dr Charles Scales
Chair, Council of Review Committee Residents of the ACGME

American Residents
Chicago, Illinois (medicine and surgery)