The Training and Education Needs of Emergency Medicine Doctors working in Rural and Regional Australia

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DECLARATION

I declare that this thesis does not contain material which has been accepted for the award of any other degree or diploma in any university; nor does it contain material previously published or written by any other person, except where due reference is made in the text of the thesis.

Dr Peter Arvier

26 June 2007

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Abstract

For professional and lifestyle reasons, most specialist doctors (including emergency medicine specialists) choose to live and work in major metropolitan centres. In rural and regional hospitals, emergency presentations are generally dealt with by 'non-specialist' doctors, often with limited peer support and minimal specialist backup. Recruitment of suitably trained medical staff for rural and regional hospitals is increasingly difficult. The doctors working in the emergency departments of these smaller hospitals are a mix of junior medical staff, Career Medical Officers, short term locums, and part time General Practitioners - with a high reliance on overseas trained doctors from widely varying backgrounds.

While undergraduate and general practice training in rural areas has been extensively studied, there has been relatively little attention given to postgraduate specialty training and few studies on adverse events and health outcomes in rural areas.

The purpose of the study was to undertake an investigation of the knowledge, skills and future directions of the workforce providing emergency medicine services in rural and regional hospitals.

The study examined advertisements to fill vacant rural and regional emergency medicine positions and found that employers were often willing to

accept even minimally trained doctors to fill service gaps. There were no agreed educational standards or qualifications for such positions.

A survey of 230 doctors working in 57 rural and regional emergency departments across Australia revealed that the 'variety of clinical work' and 'colleagues/co-workers' were rated as the most important positive aspects of the job. However, many felt overworked, unsupported, and lacking educational opportunities or a career structure. There appeared to be considerable instability in the workforce with the majority planning to leave their current position or reduce their clinical involvement. At the same time, many of these doctors expressed a desire to undertake further emergency medicine training.

Interviews with employers, educators and administrators revealed widely varying views as to how and where emergency medicine doctors should be trained. There was scepticism that increased numbers of undergraduate places would match the rate of attrition from the workforce.

The study concluded that there is need in Australia to offer a specific postgraduate qualification for doctors wishing to practise emergency medicine outside major city hospitals. To be accessible and relevant, such a course would need to be be largely taught in rural and regional hospitals and contain additional elements relevant to rural context. Emergency medicine training that exists in New Zealand and Canada may be useful models for Australia.

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INTRODUCTION

1. Introduction

1.1. Background

At the start of the 20th century, the entire body of medical knowledge could be contained in one eminent text such as Osler's *The Principles and Practice of Medicine* [1] and little more than a generation ago, most medical services were still provided by 'generalist' practitioners who managed a diverse range of services in their local community. There was little need for specialisation as the body of medical knowledge and skills was still relatively small and could therefore be provided by most practitioners. The explosion of medical knowledge, highly technical procedural skills, new areas of practice, expectations of the community and fear of litigation, have all contributed to increasing numbers of 'specialist' practitioners and indeed 'sub-specialist' practitioners, with a corresponding reduction in the complexity of services provided by the generalist practitioners. This trend towards specialisation has occurred throughout the western world. The very nature of specialist knowledge and skills means training in these disciplines is largely in metropolitan centres big enough to have the critical mass of teachers, physical resources and clinical material to provide the necessary experience.

In rural and regional areas however, most towns and smaller cities continue to rely largely on generalist medical practitioners and other health professionals for most medical services. With small and dispersed populations, it is often impossible to justify the levels of staffing and resources necessary to provide specialist medical services to the same degree as in major cities. In recent years, declining numbers of doctors in rural and regional areas, an ageing rural medical workforce, and the deskilling of those remaining has exacerbated the problem. Rural people now not only need to travel to larger centres to access speciality services, but are also having to travel to access more basic services such as maternity care. The rising cost of health care has also seen the closure of many small hospitals and the reduction in numbers of acute hospital beds. This move has helped drive the trend towards short stay and same day surgery procedures, as well as managing more complex medical conditions on an outpatient basis.

Not unexpectedly, most of the Australian population believe that a high standard of emergency medical care will be rapidly available in the event of serious illness or injury – expectations perhaps driven by the media, politicians and indeed the ‘gold standards’ and ‘best practice’ espoused by the health profession. These can be unrealistic expectations away from the large cities. It may be that those living in the most remote areas are more accepting of limited medical services and less-than-perfect outcomes as the inevitable consequence of where they choose to live.

Like other areas of medical practice, emergency medicine (EM) services are largely provided by non-specialists in rural and regional areas of Australia. There are currently about six million presentations per annum to Australian emergency departments (EDs) with the numbers continuing to grow. About one third of these presentations are to non-metropolitan hospitals. The challenge then is to ensure those medical practitioners in rural and regional areas have the necessary knowledge, skills and support services to safely deliver an acceptable standard of care to the population they serve.

1.2. The Problem

It can be difficult to define ‘rural’. To some, it implies areas of Australia where the economy is based on primary industry and there is a limited range of services in the local town. To others, it can mean anywhere outside the capital cities. When specialist registrars can do a rural component of their medical training in large centres like Townsville, Launceston, Tamworth, Ballarat and Darwin, the difference is perhaps more social isolation from their family and peers than any difference in how medical services are delivered.

Defining a universally applicable ‘standard of care’ in any area of medical practice is also problematic. What may be a standard of care in a teaching hospital, does not always easily translate to rural or more remote institutions. Recognition of a problem, identifying suitability for treatment, administration of the therapy and dealing with adverse events can be a challenge for any

doctor who rarely encounters such situations. Ieraci asks *"In the contest between evidence and opinion, should the opinion of clinicians working in referral centres automatically carry more weight?"* [2].

The Australian Council for Healthcare Standards (ACHS) requires accredited hospitals to report on a number of Clinical Indicators to demonstrate compliance with nationally agreed standards of care. As an example, one indicator in emergency medicine is the 'door to needle' time for administering thrombolytic therapy for patients meeting the criteria for ST Elevation Myocardial Infarction (STEMI). There is strong evidence that early thrombolysis reduces morbidity and mortality from a STEMI. The therapy, however, is relatively expensive and also carries its own significant risk of morbidity and mortality. A lack of training, education and clinical exposure to such events by treating medical staff can potentially result in delays in treatment and worse outcomes for patients in rural and regional hospitals.

> *In 1997, a previously well 45 year old man from a small Tasmanian town suffered a heart attack while at work. He was taken to the local hospital where the diagnosis of myocardial infarction was confirmed. Despite the patient meeting the eligibility criteria, the duty doctor was reluctant to give thrombolytic therapy due to lack of experience with this treatment. After some delays, the doctor consulted with the regional base hospital with the recommendation that thrombolysis be commenced. Unfortunately, the patient experienced a reaction to the medication shortly after it was commenced and the therapy was then ceased. After a*

further delay to organise transport, the patient was transferred to the regional hospital some three hours later. The thrombolytic therapy was recommenced but the patient appeared to have gained no benefit from the treatment. He was again transferred some hours later to a tertiary hospital for consideration for urgent angioplasty. Despite the procedure, the patient experienced further damage to his heart, worsening cardiac failure and died a few days later. The outcome may have been no different with earlier treatment but could certainly have been no worse. The family had no complaints, rather expressing gratitude to the local ambulance, hospital and doctor for 'doing everything they could' in such a kind and compassionate manner. For a variety of reasons, the doctor left soon after to take up a position in an urban group general practice. The town had (and still has) a history of difficulty attracting and keeping doctors and has come to rely on short term locums and Overseas Trained Doctors (OTDs) working in 'areas of need'.

Two more recent cases typify the serious adverse outcomes that have had long term impact on families, medical staff, and the confidence of small communities in the standard of local emergency care.

In June 2002, a two year old boy was referred by his general practitioner to a regional hospital in Tasmania with concern over an apparent respiratory illness. After being seen initially by an unsupervised junior doctor, the child was admitted under the care of a locum paediatrician who was a semi-retired overseas trained doctor on

conditional registration. Lengthy delays followed and it was 36 hours before any investigations or treatment were carried out. By this time the child's condition had markedly deteriorated. Despite urgent retrieval to a tertiary paediatric hospital, the child died two days later from overwhelming pneumococcal septicaemia. The case had wide exposure in the local media with the grieving parents outspoken on a 'health system in crisis' and 'lack of suitably trained medical staff' [3]. Three years later, the Health Complaints Tribunal found the paediatrician guilty of 'professional misconduct'. The parents, angered by the delays in addressing their concerns, are continuing to seek financial compensation for their loss. The junior doctor, while not officially held to blame, suffered extreme guilt over not acting more effectively in this case.

In another case in 2002, a six year old girl fell from a bunk bed and hit her head while on holidays with her family at a large town on the Queensland coast [4]. She was taken to the local hospital and seen by a young doctor who was in his second postgraduate year. There were no other medical staff available at the time and the hospital had a policy of not admitting children due to the limited resources available. (Children requiring admission were referred to a larger centre about 60 minutes away by road.) The doctor made the decision to discharge the child in the care of her parents. The child was brought back to the hospital later that morning ' in extremis' from an expanding intracranial haematoma and died a short time later after retrieval to a tertiary hospital in the

capital city. The result has been not only a 'life cut short' and grieving parents, but also a medical career destroyed and exposure of a system ill equipped to provide high standard emergency care in rural and regional Australia.

In the latest saga for Queensland Health, the shortage of suitable medical staff forced the temporary closure of the emergency department in a regional hospital. In a public relations disaster the day after the closure, a motor vehicle crash outside the hospital entrance left one person dead and two others seriously injured while they waited for ambulance transfer from the scene to other hospitals [5]. The Health Department solution of rotating unsupervised junior doctors from a city tertiary hospital to partially re-open the emergency department only added to the strident criticism from the public and professional organisations [6].

Problems extend beyond the initial emergency care and, not surprisingly, the media seize upon such cases as the public has an insatiable thirst for medical errors. Generally, emergency medicine generates far more 'bad press' items in the media than favourable reports [7].

Often it has taken a 'whistle blower' in the organisation to expose the problems and generate remedial action and the 'Cam affair' continues to have repercussions in NSW despite the accused medical staff being exonerated [8, 9]. A recent high profile case involving multiple patient deaths and an overseas trained surgeon appointed to a regional hospital in Queensland,

continues to have wide exposure and comment in the local, national and even international press [10]. Amid the frenzy to apportion or deflect blame, the inevitable casualties have been the loss of morale of staff remaining at the hospital, and a deep suspicion by some in the community for any other 'foreign' doctor [11-13]. Even amongst Queensland OTDs, there has been criticism from some who regard the level of training and qualifications of other foreign trained doctors as sub-standard and inherently unsafe [14].

These tragic cases are not unique and raise, yet again, numerous issues including the challenging question as to why the 'system' tolerated placing insufficiently trained or qualified medical staff in positions of such responsibility.

Conversely, there are also anecdotal cases of superb care that demonstrate how a mixture of skill, knowledge, teamwork, timely communication – and sometimes a little luck – can produce excellent outcomes.

> *In the early hours of New Year's Day in a small country town in North Queensland, a teenager was brought to the local hospital after sustaining a stab wound to the chest during an altercation a short time earlier. He was shocked and despite aggressive resuscitation, continued to deteriorate from a major blood loss in his chest and worsening shortness of breath. The solo surgeon in town (who was recovering from the New Year's Eve celebration) was confronted with the need to do an emergency thoracotomy. The junior doctor at the hospital had limited*

anaesthetic experience – certainly not for shocked patients needing selective ventilation of the left lung. Luckily, the surgeon's brother-in-law, an anaesthetist, was visiting as part of the same celebrations and was able to assist. With the limited medical and nursing resources available, a life was saved. The lacerated blood vessel was repaired as well as a number of bronchial lacerations – the patient later going on to make an uneventful recovery in the Intensive Care Unit of the regional hospital [15].

1.3. Purpose of the study

The purpose of this study was to undertake a deeper investigation of the largely non-specialist workforce providing emergency medicine services in rural and regional hospitals. This included an examination of the future direction of this workforce and ways in which the knowledge and the skills of this workforce can be supported and enhanced to deliver more effective emergency medicine services to rural and regional communities.

1.4. Research Questions

The Research Questions explored in this study were as follows:

1. To what extent do advertising and recruitment strategies reflect the quality of medical staff required for rural and regional emergency departments?

2. What characteristics define the current emergency medicine workforce in rural and regional Australia and what factors influence the future plans of these doctors?
3. What are the major issues identified by medical workforce stakeholders in recruiting, educating and training – and sustaining – a rural emergency medicine workforce?
4. What relevance do other medical training programs and the delivery of emergency medicine services in other countries have for rural and regional Australia?
5. What areas need to be addressed in developing a new emergency medicine qualification more relevant for doctors practising in rural and regional Australia?

1.5. Delineation of the research problem

Hospital recruiting is often driven by the urgent need to fill rosters without always addressing the quality and experience of those applying for positions. In times of financial restrictions, hospital managers may be driven more by the need to work within a budget rather than make allowances for training, education and career development of a workforce with a traditionally high turnover rate. (Research Question 1)

The number of practitioners in the emergency medicine workforce in rural and regional hospitals is largely unknown. A transient workforce of locums, overseas trained doctors and junior staff on rotation from major hospitals

constitute a large proportion of the workforce. There are few specialist practitioners in these hospitals. ‘Non-specialists’ are a heterogeneous group with a multiplicity of titles and roles that fall somewhere between junior medical staff and specialists. (Research Question 2)

The large number of stakeholders in this process potentially introduces competing and conflicting interests. These may be working to the detriment of future services by duplication of education pathways, inefficient use of government funding, or failing to appreciate the work done by other bodies. (Research Question 3)

Other longer established specialties have also been grappling with service delivery problems outside metropolitan areas. Non-specialist diplomas in anaesthetics and obstetrics are now well established. In other countries, notably New Zealand and Canada, there are alternative pathways for emergency medicine training that may be relevant to the Australian setting. (Research Question 4)

In recent years, federal funding for rural and remote medicine has seen a number of initiatives directed at undergraduate training and general practitioner support that hold promise for the future. There has only been limited attention to addressing deficiencies in specialist services in rural areas. There are opportunities within general practice training schemes, but no clear pathways, for pursuing a career in emergency medicine outside a specialist ‘fellowship’ qualification. Co-operation and consensus could help establish a

career structure for non-specialists that will raise the standard of care in rural and regional Australia. (Research Question 5)

1.6. Hypothesis

In a medical career extending over 20 years, the author has worked in a number of rural and regional hospitals throughout Australia in a wide variety of clinical and administrative positions as well as participating in city based retrieval services to smaller hospitals and communities. In recent years, he has been involved in teaching emergency medicine to undergraduates and doctors working in rural and regional hospitals, has an active involvement with the Australasian Society for Emergency Medicine (ASEM) including editing the ASEM *Directory of Emergency Departments of Australia and New Zealand* [16] and is a reviewer for the journal *Rural and Remote Health (online).* More recently, he has been invited to edit the section on rural and remote emergency medicine for the journal *Emergency Medicine Australasia*.

This personal experience, combined with the observations of colleagues and the views published in the medical literature and popular press, has led to the hypothesis:

That the training, education and support of emergency medicine doctors in rural and regional Australia is inadequate for the level of services required.

1.7. Methodology outline

This research commenced with an extensive literature review before embarking on a survey of advertisements for rural and regional emergency medicine vacancies. Following this, field visits to rural and regional hospitals, consultations with key stakeholders and a survey of the current rural emergency medicine workforce were completed. A 12 month clinical attachment in Canada provided the opportunity to compare and contrast practices in that country with those in Australia.

A heuristic framework has been adopted for this study as the information collected during the research has largely been derived from the personal experiences and observations of those persons interviewed and surveyed.

1.8. Importance of this study

There is ample evidence that rates of morbidity and mortality from many serious illnesses and injury are higher in rural populations [17]. If we accept the premise that equitable access to a high standard of medical care is a right of all Australians regardless of where they live, their social circumstances or ethnic background, then areas of deficiency must be addressed. While it may be impossible to achieve true equality between rural and metropolitan communities, it is a commonly expressed view that more could be done to improve health outcomes for those living outside the large cities. Although

this study looked primarily at emergency medicine services in larger rural and regional centres, it would be expected that any improvement in these services would then have a flow-on effect to the smaller and more remote communities that refer to these larger centres.

While a wide variety of training and education is available to the medical profession, there are only limited opportunities targeted specifically for those practising emergency medicine outside metropolitan teaching hospitals. Accessing this training and education can also be a major problem for geographically remote practitioners. Logically, a higher standard of training and education must translate into a higher standard of care – particularly if combined with skill maintenance, continuing education and peer support.

1.9. Definition of terms

The International Federation for Emergency Medicine has defined emergency medicine as *'a field of practice based on the knowledge and skills for the prevention, diagnosis and management of acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of episodic undifferentiated physical and behavioural disorders; it further encompasses an understanding of the development of pre-hospital emergency medical systems and the skills necessary for this development'*. [18]

A *non-specialist emergency medicine doctor* is defined as a doctor employed to provide emergency medicine services in a hospital with a dedicated staffed

and equipped emergency department, but who does not hold the Fellowship of the Australasian College for Emergency Medicine (FACEM) or an equivalent recognised qualification.

Rural and regional Australia is defined as those areas corresponding to Rural, Remote and Metropolitan Area (RRMA) classifications 3 and 4 i.e. communities with populations between 10,000 and 100,000 [19]. More remote areas of Australia (corresponding to RRMA 5–7) were excluded from this study as the size of those communities would generally be considered too small to support resident specialised medical services. While other classification indices exist, principally the Accessibility/Remoteness Index for Australia (ARIA) and the Australian Standard Geographical Classification (ASGC) of Remoteness, RRMA has been chosen for its simplicity and widespread use in the health literature.

Health outcome is defined as the degree of restoration of physical and mental health from application of the available resources, to the maximum possible level as judged by prevailing standards of care.

Quality of health care is defined as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current knowledge [20].

A glossary of commonly used acronyms and abbreviations used in this study is contained in Appendix H.

1.10. Scope of this study

To examine and test the hypothesis, the scope of this study encompassed the following areas:

1. Reviewing the relevant published literature.
2. Surveying the advertising and recruiting strategies for non-specialist emergency medicine doctors.
3. Obtaining a ‘snapshot’ of the training, education, experience, clinical responsibilities, and future plans of the rural and regional emergency medicine workforce.
4. Consulting with stakeholders in relation to the training and education of emergency medicine practitioners as well as delivery of those medical services in rural and regional Australia.
5. Observing and comparing the Australian experience with that in other countries, notably New Zealand and Canada which have many similarities to Australia in the style of medical practice and geographically dispersed rural population.

1.11. Summary

In summary, there appears to be a significant gap in the delivery of an appropriate standard of emergency medicine services in rural and regional Australia. In part, this may be due to the level of training and education of those practitioners delivering the services. This research aimed to explore these issues in more detail.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter examines the evolution of emergency medicine as a separate speciality and the characteristics of the emergency medicine workforce, particularly in rural and regional Australia. It also reviews the literature published on quality of care in emergency medicine and outcomes in rural settings. This chapter then discusses the training in emergency medicine, particularly in the rural context and makes comparisons with other specialties and experiences in other countries. Lastly, it examines evolving workforce issues that impact on the delivery of emergency medicine services in rural and regional Australia.

2.2 Evolution of emergency medicine as a speciality

The recognition of emergency medicine as an area of specialist medical practice is relatively recent. The origins of emergency medicine stem from physician experiences during armed conflicts. Lessons learnt in times of war have been transferred to the civilian setting. Rapid transport and advances in urgent medical care, saw the mortality rate of United States soldiers drop from 8.5% in World War 2 to just 1.8% in Vietnam [21]. These experiences helped

drive the formation of the American College of Emergency Physicians (ACEP) in 1968 and the recognition of emergency medicine as a speciality in 1979 [22]. In Australia, the first full time Director of a 'Casualty' Department was in Geelong in 1967 [23]. Other Australian hospitals made similar appointments and, in 1981, the Australasian Society for Emergency Medicine (ASEM) was formed [24]. To establish a pathway for specialist training in emergency medicine, the Australasian College for Emergency Medicine (ACEM) was founded in 1984 with a similar structure and examination process to other specialist colleges. Recognition of emergency medicine as a speciality occurred in 1993 (1995 in New Zealand). ASEM has continued as a separate body that represents trainees, non-specialist emergency medicine doctors, doctors working in private emergency departments, and other individuals and organisations with an interest in emergency medicine.

Like general practice, emergency medicine may be considered a primary care service as it does not require referral from another health provider. For many people, attendance at an emergency department is their first (and sometimes, only) contact with the health system. Unlike other medical specialties, emergency medicine services are almost entirely provided by salaried doctors in public hospitals. There are few opportunities for private practice except in a small number of metropolitan private hospitals.

Despite the popularity of television programs, emergency medicine has more of an image problem in the real world than other specialties. A recent review of articles in four major Australian newspapers revealed 45% of articles

portrayed emergency medicine in a negative light (mostly in relation to ED overload), 37% were neutral, and only 18% could be considered ‘favourable’. Somewhat worryingly, this study revealed that the spokesperson providing commentary was an administrator, politician or health department official in just under half the articles [7].

There are now approximately 600 specialist emergency physicians in Australia and New Zealand with the bulk of these practising in large tertiary hospitals. Only 2.5% of these specialists practise in a rural area. The Australian Medical Workforce Advisory Committee (AMWAC) has prepared two reports on the specialist emergency medicine workforce in Australia. The report of 1997 estimated that Australia would require approximately 1200 specialist emergency physicians by 2007 [25]. The 2003 AMWAC report now estimates the workforce requirements to be somewhere between 1,067 and 1,464 by 2012 based on current hospital role delineation. AMWAC estimated 54 unfilled emergency physician positions across the country in 2003. With the current training intake, specialist numbers are anticipated to be between 1,030 and 1,271 by 2012 [26]. These AMWAC reports also note the increasing proportion of women in the emergency medicine workforce and the effect a potential reduced participation will have on the future workforce. From 1995 to 2000, the most significant growth in the number of emergency physicians was in the capital cities (7.8%) with a much more modest growth (1.3%) in large rural centres, while the numbers in smaller rural centres has actually declined in recent years [26]. Workforce issues are explored in more detail in section 2.12.

The nature of the practice of emergency medicine is also evolving with higher acuity casemix, the ageing of the population, longer patient waiting times, access block to inpatient beds, 'hospital in the home' services, short stay 'observation units' and the tendency for emergency specialists to sub-specialise. Many emergency physicians are now involved in areas such as Toxicology, Disaster Medicine, Retrieval Medicine and Hyperbaric Medicine as well as research, teaching and administration.

This trend to sub-specialisation may have questionable benefits. Sinclair, writing in the Canadian Journal of Emergency Medicine, ignited debate amongst his colleagues by observing that emergency physicians need to think across multiple areas of medicine to make decisions in the uncertain environment of undifferentiated illness in the emergency department [27]. He supported the concept of emergency physicians being generalists in the speciality of 'the first five minutes of everything'. In contrast, his colleagues from Ontario speculated that too much of a generalist approach risked emergency physicians being left behind *"providing primary care, arranging urgent nursing home placements and providing ongoing specialist care for patients prematurely discharged home"* as sub-specialist inpatient teams fast-tracked cardiology, stroke, trauma and other acute patients [28].

The advent of specialist-led emergency departments has undoubtedly brought improved standards of emergency care in Australia and other countries with similar health systems [29]**.** Survival rates from severe trauma, severe sepsis, and myocardial infarction have improved dramatically. This is not only

because of the quality of the medical staff now providing initial hospital care, but also due to dramatic improvements in technology, support staff and emergency medicine ‘systems’[30] as well as the entire range of resources available within large teaching hospitals . The presence of specialist emergency physicians in a department also reduces waiting times and access block to inpatient beds [31]. Much of this improvement has been driven by specialist emergency physicians through the evolution of academic emergency medicine and associated research. Inevitably, such ‘centres of excellence’ are part of large tertiary hospital networks, but it is unlikely significant numbers of emergency specialists will be providing services in smaller rural and regional centres in the foreseeable future.

Like other specialties, emergency medicine may face *increasing* shortages in rural areas for the very same lifestyle, remuneration and professional issues faced by other medical colleagues [237]. Ironically, large city public hospital emergency departments are now increasingly being burdened with issues such as overcrowding, stress, workplace violence, access block, lack of support staff, and budget constraints. Inevitably, such factors will make these places less attractive to pursue a career. While emergency physicians working night shift is an established part of professional practice in the USA, it is yet to become regular practice in Australia. Night shifts would seem to face some resistance with the current workforce who regard themselves as having already ‘done their time’ in working these unpopular shifts during their junior years. Not surprisingly, emergency medicine is a speciality that attracts doctors who thrive on a certain amount of stress, but there are now increasing reports in

Australia and internationally on emergency physician health and burnout [32-36]. It remains to be seen if this will aggravate the difficulties in providing sustainable numbers of emergency physicians in our hospitals, particularly the rural areas where the number of physicians is already small and on-call commitments more onerous. It already appears that work related stress is a significant factor in general practitioners (GPs) leaving rural practice [37].

2.3 Health services in rural and regional Australia

Over the last decade, there has been an increasing realisation by government that rural health issues are different from, and require a different approach to, those of the city. Strident voices from the 'Outback' have seen rural health issues such as workforce shortages, and closure of rural health facilities placed on the government agenda with editorials in the professional journals [38-40]. Even the personal view of the Federal Minister for Health and Ageing gained prominent space in a rural health journal [38, 41]. While this article is perhaps little more than an opportunity to publicise government initiatives, it does emphasise that governments are taking notice of issues regarded as important by rural voters.

Larson's article on rural demographics highlights the changing nature of rural populations with a trend to ageing population due to out-migration of young adults; child bearing at a significantly younger age (but proportionally fewer babies overall due to the out-migration); and paradoxically, increasing

numbers in indigenous populations with more young people, higher fertility and less out-migration to the cities [42]. All these changes are likely to lead a greater demand for health services in these communities. These patterns are not only evident in rural and remote areas, but also in larger regional centres. Interestingly, Tasmania may well experience even greater demand for health services due to in-migration of older people seeking lifestyle changes and retirement in less financially demanding environments.

Overall, mortality and morbidity rates from illness and injury are higher in rural areas. This is at least partly due to lifestyle factors such as alcohol abuse, excess speed and unsafe farming practices and is then further complicated by difficulty accessing appropriate emergency medical systems [43]. Studies from the USA, UK and Europe report a similar picture [44-47]. There is also a higher incidence of diabetes, asthma and cancer. Of particular concern is the higher rate of self harm and suicide in rural areas. Even when local systems are accessed, there are often lengthy delays in communicating with, and transfer to, definitive care in a larger institution [30, 48]. The lack of timely and effective care, even for conditions of lower level acuity, appears to lead to significantly higher rates of admission in rural Victoria especially in lower socio-economic groups [49].

The health of indigenous Australians continues to be a matter of national concern with few indigenous health workers in the workforce [50]. Not surprisingly, indigenous people are over represented in serious illness and injury presentations to emergency departments and intensive care units. In the

Northern Territory, indigenous people are 28% of the population but generate 45% of the ICU admissions. Mowatt's eloquent presentation to her peers outlined the unique challenges and rewards of attempting to provide 'first world' emergency medicine to people living in 'third world' conditions in central Australia where concepts of 'golden hour', 'hospital-in-the-home', 'ambulance bypass' and even date of birth can have little meaning [51]. In one Western Australian study, indigenous people were three times more likely to require emergency admission to intensive care units and had a higher hospital mortality [52].

There have been some recent positive reports in the literature: Harradine *et al* suggest that outcomes from severe head injury in rural areas are comparable with those in urban areas, however, this study only addressed the rehabilitation networks in rural NSW rather than the initial care [53]. Doherty *et al* in a study of three large rural regional base hospitals in NSW found that mortality rates per ED presentation and admission rates for triage categories 2, 3 and 4 were significantly lower than that reported in an adult tertiary hospital [54] although this study was not able to determine precisely why this variation appeared to exist. The authors speculated that differing clinical practices and organisational structures were part of a combination of factors explaining this difference.

Video-conferencing and other telemedicine systems have contributed significantly to educational and consulting opportunities in rural areas but have not been used extensively as part of emergency medicine practice.

Expeditioners working for the Australian Antarctic Division (AAD) have used very basic forms of telemedicine for many years – commencing with Morse code transmissions from the 1911-1914 Australasian Antarctic expedition. The Polar Medicine Unit of the AAD now has a very sophisticated medical network of communication and specialist consultation via telemedicine technology to support these isolated practitioners [55]. Reports by Ricci *et al* from the USA [45] and Jordan *et al* from Canada [56] suggest this technology may also hold promise in supporting rural doctors confronted with serious medical problems, although experience to date has largely been for more 'consultation' type problems than emergency management. Stapleton in 2006 reported on the Virtual Critical Care Unit project in New South Wales utilising high definition broadband connection between a large district hospital and its regional referral hospital to provide real time assistance with management of serious cases [57]. While the numbers of consultations were small, their experience to date suggests this can not only help provide a higher level of care, but can also facilitate earlier critical transfers as well as reducing unnecessary low acuity transfers.

2.4 Emergency medicine services in rural and regional Australia

In Australia, there are approximately 700 public and 300 private hospitals (not including stand alone day facilities and mental health institutions) [58]. Of these, about 80 are teaching hospitals accredited by ACEM for various periods

of emergency medicine training [59]. (There are also a number of New Zealand hospitals that hold this accreditation). These hospitals all employ emergency specialists as well as providing core services in all major disciplines on site. Many of these hospitals also provide highly specialised tertiary services for a large population outside their immediate catchment area. Most of these hospitals are located in capital cities and other major metropolitan centres. Only five accredited hospitals are located in towns of fewer than 50,000 people. (At the time of writing, ACEM announced it would be raising the level of FACEM staffing necessary for accreditation for advanced training in emergency medicine. This may have the effect of significantly reducing the number of accredited hospitals and the number of training positions).

In rural and regional Australia, there are at least 60 smaller hospitals also providing dedicated 24 hour emergency medicine services and employing salaried medical staff or sessional doctors [16]. These hospitals usually have a nucleus of basic speciality services (most commonly general surgery, general medicine, anaesthetics, and obstetrics) in an institution with a capacity of 50–200 beds. Most of these hospitals are in rural and regional centres serving populations between 10,000 and 100,000. This would correspond with RRMA classifications 3 and 4 (approximately 13% of the Australian population) [19]. Some of these hospitals are in outer metropolitan areas that would be regarded as under-serviced communities for a wide variety of reasons including high unemployment, lack of opportunities for school leavers, lack of public transport and other government services. These communities are also more

likely to have vulnerable populations of older persons, indigenous people and ethnic minorities [60]. These same characteristics are also common to many rural communities [61].

In addition, there are an estimated 500 smaller hospitals in more remote areas providing varying levels of emergency service utilising only nursing staff or local GP Visiting Medical Officers (VMOs) in an on-call capacity.

Numbers of emergency department ‘occasions of service’ are difficult to gauge. The Australian Institute of Health and Welfare (AIHW) reports almost six million presentations for the 2003-04 year of which about two thirds were to major referral and large city hospitals [58]. The remaining two million presentations were to outer regional and remote hospitals. These numbers are almost certainly an underestimate and should be treated with some caution as AIHW estimates only about 73% of hospitals provided data for the compilation of the Australian Hospitals Statistics 2003-04. Numbers of presentations are increasing across the country, not only relating to population growth, but also the ageing population, reduction of after-hours GP services and higher costs associated with seeing a general practitioner.

2.5 ‘Non-specialist’ emergency medicine doctors

Many of the presentations to hospital emergency departments in Australia and New Zealand are dealt with by doctors other than emergency specialists,

training registrars or other supervised junior staff. These doctors include Career Medical Officers (CMOs), International Medical Graduates (or 'Overseas Trained Doctors'), junior medical staff on rotation from teaching hospitals, short term locums, and general practitioners. The knowledge, skills, qualifications and experience of these doctors vary enormously. Supervision of inexperienced doctors may be only nominal or non-existent. Currently, it is rare to find any particular standards of training or postgraduate qualifications required for these doctors other than a registrable degree [62]. Indeed, there is often no requirement that there be any specific training in emergency medicine, nor any requirement to be on-call for emergencies.

AMWAC noted that emergency medicine services in smaller rural and remote areas will continue to be provided by GPs, other disciplines and nurses. The 2003 report did acknowledge the need for emergency physicians in smaller rural areas but qualified this with the statement *"at this stage the development of a consultant based service in smaller rural and remote hospitals is not seen as likely and for this reason has not been included in the workforce projections"* [26]. The AMWAC reports of 1997 and 2003 noted *"Appropriate training and re-training opportunities together with appropriate remuneration and indemnity arrangements appear to be barriers to GPs obtaining and using their emergency medicine skills"* [25, 26]. No mention was made of non-specialist emergency doctors and the Australasian Society of Career Medical Officers (ASCMO) took exception to this, regarding such an omission as being *"symptomatic of a 'blind spot' by some in the profession to the valuable service provided by these doctors"* [63].

Within the medical workforce, this group of CMO non-specialist doctors (particularly salaried doctors in rural and regional hospitals) provides a variety of services. Many of these doctors are highly skilled and experienced and have additional qualifications but these qualifications are generally not recognised as being specialist equivalent. Also titled ‘Salaried Medical Officers’ (SMOs), or in New Zealand, ‘Medical Officers on Special Scale’ (MOSSs) and in the United Kingdom, ‘Staff Grades’ or ‘Associate Specialists’, they often carry similar clinical responsibilities to their registrar and specialist colleagues. Without a recognised specialist qualification, these doctors are often employed with pay and service conditions more in line with junior medical staff than specialist staff.

Such practitioners constitute not only a significant part of the emergency medicine workforce, but are also found in other disciplines such as psychiatry, aged care, palliative care, rehabilitation medicine, sports medicine, community health, public health and medical administration. AMWAC reports that there were 656 Career Medical Officers working in the public hospital system in 2003 [64]. ASCMO is the principle organisation representing these doctors but is mainly based in NSW. ASCMO estimates about half its members work at least partly in emergency medicine but have no formal recognition of their skills, and often no career path to further those skills without embarking on an arduous fellowship program.

Egan *et al* writing in the Medical Journal of Australia (MJA) in response to the debate on the concept of a 'hospitalist' – an experienced medical officer with highly developed skills and knowledge in acute medicine – argued that CMOs were already evolving in this role in the Australian hospital system [63]. While such generalist positions exist in parts of the USA, the concept has not gained wide acceptance in Australia. Attempts by ASCMO to develop a 'Masters in Clinical Medicine' through Queensland or NSW Universities has been unsuccessful to date [65]. Part of the difficulty appears to be the need to incorporate core modules and electives that cater for such a diverse group of practitioners. CMOs also have difficulty in maintaining College based Maintenance of Professional Standards (MOPS) accreditation if they are not a fellow of a relevant college. Similarly, CMOs have difficulty in participating in Continuing Medical Education (CME) activities provided under the umbrella of the *Support Scheme for Rural Specialists.* ASCMO is trying to address this in NSW at least, by development of a Continuing Professional Development Program in conjunction with the Royal College of Pathologists of Australasia. At the time of writing, the NSW Institute of Medical Education and Training was also canvassing a Hospitals Skills Program for non-specialist ED doctors.

2.6 Other emergency medicine providers

There are a number of private hospitals in the country with dedicated emergency departments. Most of these are in metropolitan areas and some of

these do not provide an overnight service. There is only one 24 hour private emergency department operating outside a major metropolitan area [16]. Private emergency departments are also a significant employer of non-specialist doctors or doctors-in-training wishing to supplement their public hospital income. While there are many FACEMs working in private emergency departments, much of this work is sessional and more complex and serious cases are usually re-directed to nearby public hospitals. There is only one private hospital emergency department in the country that is accredited by ACEM for training registrars [59]. For 'commercial in confidence' reasons, it can be very difficult to obtain information on staffing numbers, casemix and throughput in private hospitals.

There are other health care organisations for which emergency medicine is potentially a significant part of their workload. These include the Royal Flying Doctor Service (RFDS), specialised retrieval services and the Australian Defence Forces (ADF). Of necessity, the doctors working for these organisations are more likely to be generalists rather than specialists (in the traditional sense) although the unique nature of the medical services they provide means these doctors have specialised knowledge and skills not found in other areas of the profession. Often they are required to provide a wide range of public health, occupational health and primary care services in addition to responding to emergencies. As well as encouraging the acquisition of additional relevant qualifications, time spent working with these organisations can often be credited as part of the training requirements with relevant colleges.

The emergency medicine services provided by doctors working for these organisations are often undertaken with minimal peer support while working in isolated environments with considerable time and logistic difficulties in accessing higher levels of care – a situation familiar to rural hospital practitioners. Not infrequently, the emergency cases they encounter would be challenging even in well equipped tertiary hospitals. This is well illustrated by Smart in writing of her experiences and those of her colleagues as medical officers with the ADF undertaking deployments to Rwanda, Bali and other humanitarian missions [66].

Remote medical practice also extends beyond the usual concept of rural towns and isolated communities. The particular circumstances of practising medicine in Antarctica illustrate the great advances that have been made in transport, communications and telemedicine by the Australian Antarctic Division (AAD). While medical emergencies are comparatively uncommon in the Antarctic, the ingenuity and resourcefulness of expeditioners, together with international co-operation has produced some remarkable successes in providing medical care in this challenging environment [55, 67]. All of this comes at a significant cost despite the usually minimal medical needs of a small population of (usually) healthy adults. The combination of geographical isolation, difficulties of any sort of retrieval, and expectations of providing a high level of medical care, means considerable material and financial resources are required. This is in marked contrast to the limited resources

available to Sutton when writing of his personal experiences in Afghanistan with *Médecins Sans Frontières* (MSF) [68].

Commercial air travel deserves a mention with the dramatic increase in numbers of people able to afford long haul international travel. In-flight medical emergencies have been well documented and, although cabin crew have basic life support training, airlines are generally aware that there is a high probability of a doctor travelling on any given flight [69]. Even with the availability of good communications, providing emergency care with limited resources in a cramped, noisy, hypoxic environment many hours flying time from a hospital is potentially very stressful – particularly if the volunteer doctor is also sleep deprived and the airline is concerned at the high cost of diverting to another destination. A not dissimilar situation exists with human spaceflight and the additional physiological complications due to the microgravity environment. This will produce additional challenges for any urgent medical care on longer missions to other planets [70].

2.7 Quality of care in rural hospitals

Quality of emergency care in smaller hospitals is largely unknown and poorly studied. System failures, staff shortages, inadequately trained staff, and lack of supervision of junior staff can lead to dangerous levels of care, aggressive investigative journalism, and potential litigation [4, 8, 11-13]. Some recent examples were highlighted in Chapter 1. It makes little sense to take a

seriously ill or injured patient to a facility that lacks adequate resources or appropriately trained staff. Logically, higher level services should be located in bigger centres thereby achieving the necessary critical mass to maintain a high level of expertise and resources. Unfortunately, political expediency often determines where hospitals are located – the end result sometimes being the duplication of unsustainable services in geographically close institutions resulting in an overall poorer level of service [71].

Teaching hospitals and 'evidence based medicine' generally determine practice standards but these are not necessarily universally applicable. The 'gold standards' of care may ignore geographical realities. Most serious trauma in Australia does not present first to a major trauma centre, and most myocardial infarctions do not present first to a facility with on-site invasive cardiology.

The 'tyranny of distance' in rural Australia means bypass of the nearest hospital is rarely an option and Somers argues that the GP based emergency care that exists in rural areas is essential to limit morbidity and mortality of serious cases prior to transfer to tertiary centres [72]. However Wong and Levy looked at the high mortality in 22 emergency patients transferred from rural and peripheral hospitals to a regional tertiary hospital [48]. They identified significant system issues including transfer delays and inadequate transport processes as well as patient issues of advanced age, co-morbidities and poor prognosis – suggesting much more could be done to expedite necessary transfers as well as minimise use of scarce resources on patients

with predictably poor outcomes. Stapleton took this a step further when looking at the advantages of telemedicine links between isolated and referral hospitals [57]. Mungall in the UK puts forward a similar argument claiming increasing centralisation of services has led to a 'distance decay' (even in a highly urbanised country) whereby utilisation of services is in inverse proportion to the distance of the patient from hospital [47]. He concluded that there must be a balance between cost-effectiveness and the provision of accessible and equitable services.

Closure or 'rationalisation' of hospital services in rural areas is an emotive issue. The Rural Doctors Association of Australia is passionate in its support for small rural hospitals, arguing that there is no evidence to suggest that they are inherently unsafe and, in fact, outcomes in some areas such as obstetrics are better than large city institutions [73]. The vastly different casemix and complexity of care makes these comparisons very difficult. Hays *et al* looked at procedural rural general practitioners and subjected a range of obstetric, anaesthetic and surgical cases to review by rural doctor peers, regional specialists, a medical administrator and a consumer representative [74]. However, only 91 cases from 24 proceduralists comprising mostly relatively simple elective procedures were audited. The recruitment of cases and the participating doctors may have introduced significant bias into the study. Not unexpectedly, there were no adverse outcomes and quality of care was generally ranked higher by the rural doctor peers and the rural consumer representative. In an extension of this first study, Hays and his colleagues interviewed rural doctors, nurses, patients, and patients' families on their

perceptions of what constituted quality care [75]. The consumers of health care were generally more concerned about communication, issues of accessible health care, cost and convenience. Providers of the health services were more concerned about professional and technical issues. The recurring theme here is usually one of strong support by a community for its health services and the associated staff and infrastructure, along with a scepticism that consolidation of services in larger centres always equates with a higher standard of care. Hays and his co-authors acknowledged that all participants in their study may have felt a need to defend what they regarded as a valuable service.

The optimum size of a hospital and its emergency department is debatable but more work needs to be done to see whether patient outcomes are compromised in small departments [2, 76]. Indeed, the emergency department may well be the most error prone part of the hospital [77] and there is increasing evidence in the US literature that there are many more adverse events that go unreported [78].

Croskerry *et al* maintain that quality of education in emergency medicine and education about quality, are distinct but overlapping entities [79]. The authors assert these need to be considered together and, despite the apparent importance, there has been relatively little research. It can be difficult to measure quality and whether or not quality improvement projects can positively affect the care of patients presenting to emergency departments,

particularly when it involves vulnerable populations of older people, the uninsured and ethnic minorities [60].

Evidence suggests that smaller institutions have a higher incidence of critical events in their emergency departments and indeed the wider hospital [80] and significant factors include the limited supervision and direction of junior staff [9]. Of concern are the observations in the recent editorial in the MJA reflecting on the apparent lack of progress in the safety of healthcare in Australia 10 years after the 1995 Quality in Australian Health Care Study [81]. This study cited an estimated 18,000 deaths per year in Australian hospitals from adverse events. At the time of writing, the Federal Government has announced the formation of a new body, the Safety and Quality Commission, to implement recommendations from the 1995 study.

Examination of quality in hospital care in other countries has also been difficult. In a UK report by Dyas *et al* on outcomes in major trauma, *training* and *specialist-led* services were identified as important infrastructure changes to be achieved [82]. The report acknowledged though, that improving outcomes is likely to involve a whole series of changes in the entire system. A paper by Esposito *et al* from the US State of Illinois looked at preventable deaths in rural areas and found that they were most commonly due to inappropriate management of airway problems and chest injury [83]. The authors suggested education was the most cost-effective method of reducing these preventable deaths. In New Zealand, an extensive review of adverse events across 13 generalist hospitals identified ‘systems issues’, ‘lack of

consultation' and 'education' as the major areas to be addressed in reducing these events [84, 85]. The Canadian Adverse Events Study [86] showed a trend towards a higher number of adverse events in teaching hospitals than in large and small community hospitals but the authors acknowledge that their model did not fully take into account differences in the acuity of the patients at the different hospitals. They also noted that teaching hospitals receive patients at different points of care (for example, transfers of complex patients from smaller hospitals) and the difficulties involved with a number of different providers of care in teaching hospitals. Like the New Zealand study, the Canadian report focused on admitted hospital patients and has not specifically identified adverse events in the emergency department.

Some work has been done looking at critical incidents in Australian emergency departments. Vinen and his colleagues first began to collect data in 1993 and 1994 and presented this information at the ACEM national meeting in November 1994 [87]. The bulk of these incidents involved 'junior' or 'very junior' staff and most were overwhelmingly judged to be preventable. There were very few demonstrable adverse outcomes but more than half were judged to be potentially 'very serious'. The emergency department model proposed by Vinen of incident monitoring, identifying causative factors and implementation of corrective strategies, borrows largely from experience in anaesthesia that has demonstrated re-engineering systems can substantially reduce errors [77]. Most recently, Hendrie and his colleagues examined adverse events in a large tertiary hospital utilising the Quality in Australian Health Care Study methodology [88, 89]. They found that just over half the

adverse events occurred prior to ED attendance and were mostly errors of commission. ED events were more likely to be errors of omission and highly preventable. In at least one small regional Victorian hospital, concerted efforts to address these system issues, has led to a substantial reduction in adverse events [90, 91].

The extent to which workforce issues impact on quality of care is difficult to identify. The 2004 AMWAC report on the public hospital workforce provided a variety of findings from its consultations with the key stakeholders [64]. The move towards 'safe working hours' was more difficult in rural areas due largely to staffing shortages. Ironically, in metropolitan areas, there is a real temptation for junior medical staff to 'moonlight' in highly paid locum jobs at other hospitals because they now have shorter rostered shifts at their place of principle employment. The high reliance of the public hospital system on OTDs with varying levels of knowledge and skills, as well as the requirements for appropriate supervision, is an ongoing challenge and is a favourite topic for the media when problems have arisen in the hospital system [13, 14]. Workforce issues are further examined in Section 2.12.

2.8 Training rural doctors in emergency medicine

Dealing with medical emergencies is frequently identified by rural doctors as an area of concern due to low caseload, lack of resources, lack of familiarity with current practices and lack of close support from referral hospitals [92-94].

A Canadian report by Rogers has also identified such problems as part of the reason why rural physicians generate a high number of transfers to larger institutions [95]. Peiris, Wirtanen and Hall have written on the difficulties involved in evacuating patients from a primary health centre in a remote indigenous community in the Northern Territory. Not only were the limited primary care staff called on to provide hospital level acute care, they also had to manage many of these patients for some hours while awaiting retrieval services [96].

Such factors can influence doctors moving to lower risk practice or relocating to larger centres [97, 98]. This often results in smaller communities and hospitals increasingly being serviced by fewer practitioners and practitioners with inadequate training or experience [99]. Lack of confidence in dealing with emergencies is also a deterrent to young doctors taking up salaried positions in rural practices and hospitals [97].

The same problem is probably magnified for junior doctors on bonded rural scholarships or compulsory rural rotations from major hospitals when issues of lack of experience and limited on-site support add to the problem [100, 101]. In teaching hospitals, a well established system of teaching, supervision and graded responsibility exists. Problems potentially arise when junior staff find themselves working as the sole doctor after-hours in a small hospital with an expectation of knowledge and competence far beyond that required of them in a teaching hospital. Although her study was limited to only 19 responses, Smith's interviews with a mixture of clinicians, educators and administrators

involved in rural hospitals in Queensland suggested teaching of core rural competencies together with proper support strategies would help prepare junior doctors for rural rotations to small hospitals [101]. Worryingly, some of Smith's respondents had quite negative experiences, not only in relation to professional matters but also for personal safety and loneliness, which would do little to encourage their peers to look favourably on a rural career.

The 1998 study by Buist *et al* concluded that the undergraduate curriculum provides insufficient theoretical and practical skills for the management of life threatening emergencies [102]. A more recent study by Dent *et al* in 2003-2004 looked at training of 470 prevocational doctors across Australia. This study found that doctors generally felt well prepared for the job particularly in relation to dealing with patients and relatives. However, only a minority (31%) felt adequately prepared for dealing with clinical emergencies [103]. Increasingly, teaching hospitals are now including undergraduate and postgraduate teaching of emergency medicine as part of formal teaching programs [104] but to what extent this improves outcomes, or merely stimulates interest in emergency medicine, remains to be seen.

In recent years, various weekend courses have become widely available and have been well supported by non-specialist doctors, particularly rural GPs. These include nationally delivered courses such as EMST (Early Management of Severe Trauma), ELS (Emergency Life Support) and APLS (Advanced Paediatric Life Support), as well as other 'emergency' courses developed in response to local needs [105]. At best, these courses are an introduction to

managing emergency conditions and rely on a fairly didactic 'blueprint' approach for clinical problems. There is also a plethora of weekend and other short courses developed in regional areas in response to the ongoing need of education, not just in emergency medicine, but in many other disciplines in which rural doctors require additional knowledge and skills [106-108]. While undoubtedly such courses lead to improved knowledge of emergency management and 'process of care' [109], it is still difficult to establish whether or not these courses lead to improved patient outcomes [110]. Logically this should be the case but retention of knowledge and skills in the setting of low case load is problematic, and building on principles learnt at these courses relies very much on the enthusiasm of the doctors concerned.

It is not just the initial acquisition of knowledge and skills that can be difficult, but maintaining continuing professional education in smaller centres can be a challenge. Work, family and personal commitments can make simply finding the time very difficult. In response to receiving an award for outstanding service to rural communities, a Victorian GP (who also provided a range of services at the local Base Hospital), wrote *"You might want to learn other skills, but because your plate is so full already, it's very difficult to do that"* [111]. The review by Glazebrook and Harrison identified multiple barriers to maintaining procedural skills in rural areas [112]. As well as the expected issues of time constraints, lack of locum relief, difficult access and family obstacles, the complexity of multiple credentialling requirements from colleges and regulatory authorities was also raised. Similarly in Canada, Curran *et al* looked at barriers to continuing education for rural health care

professionals and identified geographical isolation and poor telecommunication infrastructure as the major issues [113]. Not surprisingly, employer initiatives such as locum coverage, remuneration and travel expenses were also identified. The Australian Government is attempting to address this, at least in part, with the recent announcement of $3000 grants for procedural rural GPs to attend training, upskilling or skills maintenance activities [114].

Simulation training is a relatively new component of obtaining and maintaining skills in emergency medicine. This type of training is also becoming incorporated in undergraduate and postgraduate training in anaesthetics, cardiology and obstetrics. Sophisticated and highly realistic mannequins are used to create a variety of clinical situations which may improve or deteriorate depending on the response to procedures carried out by the participants. In the current climate of concerns over patient safety and limited opportunities to practise potentially dangerous interventions on seriously unwell people, simulation training has the advantage of reducing the need to wait for suitable clinical opportunities to arise to refine the necessary skills. Not only is such training useful for individual doctors, it can also be useful to refine the teamwork so important for managing difficult clinical situations. Reports to date suggest that there is a significant increase in confidence by the participants to carry out emergency procedures and this training may also help to maintain skills for rarely encountered clinical situations [115, 116]. The major disadvantage of simulation training is the high cost of the equipment and setting up the simulation laboratory – and the

inevitable need for rural doctors to travel to the major institutions to access this resource.

The curricula of the Australian College of Rural and Remote Medicine (ACRRM) [117] and the Royal Australian College of General Practitioners (RACGP) [118] include aspects of emergency medicine, but this is restricted by the need to encompass aspects of all areas of medical practice. The current FACRRM curriculum includes a more significant component of emergency medicine knowledge and skills than that required by more urban practitioners. ACRRM as been quite pro-active in procedural areas relevant to rural practitioners including co-operative arrangements with specialists to develop dermatology, radiology and ultrasound programs for rural doctors [119]. Interestingly, the RACGP has developed a Graduate Diploma in Rural General Practice (shortly to be a Fellowship in Advanced Rural General Practice) which can include an 'Advanced Rural Skills Post' in emergency medicine [120].

ACRRM was created in 1997 following moves by the Rural Doctors Association of Australia (RDAA), after a strong feeling by members that RACGP and its training scheme did not adequately reflect the interests of rural and remote practitioners. RDAA has continued as a separate body representing the broader interests of rural doctors, their families and communities. This includes a rural specialists group to give a greater voice to this small section of the workforce although their position paper on a sustainable rural specialist workforce makes no mention of emergency medicine services [121]. Jackson

in 1991 was quite cynical about the ability of ‘teaching’ hospitals to teach medicine applicable to the rural setting and this was also part of the stimulus for the formation of ACRRM [122]. The professional rivalry between RACGP and ACRRM has been quite acrimonious at times, generating plenty of articles and correspondence in newsletters and professional journals [122-124], and even spilling over into international journals [125]. The situation was not helped by Medicare Australia only recognising the FRACGP qualification for GPs to be vocationally registered and therefore able to bill at the higher Group A1 Medicare benefits. The situation has now been at least partially overcome by the ‘Rural Other Medical Practitioners Program’ that allows holders of the FACRRM or other suitable qualifications to apply for the higher billing rebates if they are working in RRMA 4-7 areas or disadvantaged communities [126].

Recently, ACRRM has presented its case to the Australian Medical Council (AMC) for the recognition of rural and remote medicine as a distinct specialist discipline requiring a program of vocational preparation separate from that of general practice and encompassing many aspects of specialist medical practice, including procedural skills [127]. The application was firmly opposed by other professional organisations including the AMA – doing little to enhance understanding and co-operation between the diverse city-based groups and their rural colleagues. In fact the AMA argued that the recognition of rural and remote medicine as a specialist discipline risked reducing the number of existing specialists in rural areas and thus may also reduce the level of patient safety [128]. At the time of writing, this application for specialist

recognition had been unsuccessful, although the Federal Minister for Health and Ageing had committed additional funding for ACRRM to develop an accredited training program [129]. Accreditation of the ACRRM training program will ensure that the FACRRM is recognised as an alternate pathway to vocational registration. ACRRM is currently investigating the development of an Advanced Skills Curriculum in emergency medicine that follows on from its Primary Curriculum.

While ACEM has a Position Paper on rural emergency medicine that acknowledges the role of non-fellows [130], the College has, to date, not become involved in the issue of training non-specialist emergency medicine doctors although non-specialists are able to enrol in ACEM's Maintenance of Professional Standards Program [131] . Presentations by Hungerford [132] and Curran [133] have challenged ACEM to become more involved in the special needs of rural emergency medicine. ACEM has been considering for some time, a mechanism for trainees to undertake part of their training outside metropolitan hospitals. Curran also challenged the emergency medicine journals to give rural issues a much higher editorial profile. This met with only a lukewarm response in 2001 [134] but, encouragingly, the journal *Emergency Medicine Australasia* has now included a section for rural and remote emergency medicine.

It is not just the medical profession that is grappling with the issue of relevant education for rural and remote practitioners. In nursing and allied health, the literature is increasingly reporting on the difficulties and innovative models in

delivering education for rural and remote health practitioners, particularly with the increasing emphasis on mandatory continuing education [135]. Interestingly, the nursing profession has been pro-active in developing postgraduate university based critical care and emergency nursing qualifications including Graduate Certificates, Diplomas and Masters degrees by coursework. Ten Australian Universities now offer a variety of courses, with a significant amount of the course work available through distance education [136]. Cox and Hurwood recently reported on an innovative trial by Queensland Health of sponsoring a postgraduate qualification in allied health specifically for remote practice [137]. Evaluation of the first participants in this graduate certificate reported very positive experiences.

Until recently, there were no such medical equivalents in Australia although the University of Auckland offers a Postgraduate Diploma in Community Emergency Medicine [138]. In a very recent development, the School of Enterprise within Melbourne University Private, has designed a 12 month emergency medicine course leading to a Postgraduate Diploma with the first students commencing in 2006. At present, this course is limited to candidates employed by the Western Health Service in metropolitan Melbourne [139]. The course, consisting of formal teaching as well as clinical placement, is directed at GPs, Career Medical Officers and Overseas Trained Doctors. As mentioned earlier, the NSW Institute of Medical Education and Training is exploring development of an emergency medicine curriculum for non-specialist doctors under its Hospital Skills Program. It remains to be seen if

ACEM, ACRRM, RACGP or some other body becomes the ‘owner’ of training for non-specialist emergency medicine doctors.

2.9 Alternative models of providing emergency medicine services

Clearly not all emergency medicine services are provided by medical practitioners. A variety of lay persons and health professionals all have roles to play depending on the nature and location of the clinical problem. The smaller and more remote the community, the more likely it will be that both the first response and initial treatment will be provided by ambulance volunteers, paramedics and/or nursing staff rather than doctors. Medical staff involvement and hospital access may be hours or days away – necessitating critical (and confident) decision making and potentially complex interventions by those providing the initial care. Issues of reliable communication to higher levels of care and the response of specialised retrieval services have additional urgency in these situations.

With a shortage of health professionals, there has been much recent interest in the concept of advanced practice nurses, nurse practitioners and expanded roles for ambulance personnel (or ‘task substitution’). This blurring of traditional health professional roles has led to a re-examination of how best to provide care across the whole spectrum of health needs.

In remote communities, nurses have traditionally had an expanded scope of practice that recognises the need to provide a diverse range of services without immediate medical support [96]. Through professional associations like the Council of Remote Area Nurses of Australia (CRANA), nurses are now able to access a variety of educational packages including courses on emergency care relevant to remote nursing practice [140]. CRANA regards its members as 'specialist nurse practitioners' although formal recognition of nurse practitioners in Australia is relatively new.

In the Canadian province of Alberta, there has even been a recent move to allow pharmacists to write prescriptions for some medications, renew existing prescriptions, and administer vaccines – with debate as to whether this is the 'thin end of the wedge' or merely a logical extension of much that pharmacists already do with 'over-the-counter' medications [141, 142]. The USA also has well-established 'physician assistants' providing a range of (often technical) services as part of a physician led team in areas such as anaesthetics, cardiology, urology and gastroenterology. Nurse practitioners are generally able to operate *autonomously* for a clearly defined range of clinical issues. The concept of physician assistants has no direct equivalent in the Australian setting although nurses in operating rooms, intensive care units and emergency departments would effectively function as such for much of their duties.

O'Meara *et al* studied three Victorian communities and concluded that a successful rural urgent care system required a balance of a number of interrelated elements of both infrastructure and personnel [143]. Health

professionals in this study all reported difficulty accessing appropriate training. In O'Meara's study, GPs reported difficulty justifying ongoing training in acute care because of the low frequency of exposure to such events – and subsequently lacking confidence when the time came to apply such knowledge and skills. In a later report, O'Meara outlined how successful engagement of the community and a degree of political support were able to start and implement improvements in a rural urgent care system including the funding of a community paramedic model [144]. Conversely, proposals to use under-utilised ambulance and fire service personnel to supplement ED staff have had mixed reactions. While this practice exists in some US states, 'turf wars' with nursing organisations and opposition by ambulance unions has meant progress has been difficult [145].

2.10 Nurse Practitioners

Nurse Practitioners (NPs) have existed in other countries for many years and are known by a variety of titles, with varying educational requirements and differing clinical and legal responsibilities. In Canada, there are considerable differences between the provinces, making acceptability and portability of NP qualifications difficult [146]. The stimulus to develop NP programs arose from the challenges in Newfoundland, a province with many small communities scattered over an enormous and rugged coastline and often isolated by the extreme weather conditions. At a 1998 conference, the Canadian Medical Association and the Society of Rural Physicians expressed

reservations that such initiatives may be more about government desire to introduce cheaper alternatives of delivering care than addressing medical practitioner shortages [147]. At this conference, it was reported that the very same professional and lifestyle issues that affect recruitment and retention of doctors to rural areas, are likely to apply to the 'specialist' areas of nurse practitioners. Drummond and Bingley's paper on emergency nurse practitioners in Canada also acknowledges that NPs do not necessarily reduce overcrowding in the ED as the bulk of NP services are provided for patients with minor illness [148]. They also note that NPs may actually increase the ED nursing workload and generate additional costs through longer consultations and more investigations. While benefits of NPs in the primary care setting seem well established, Drummond and Bingley conclude that, without evidence of cost-effectiveness, incorporation of NPs in the ED setting may not be justified. Much of the published literature supporting the concept of NPs focuses on 'softer' issues such as patient satisfaction, health promotion, patient education, waiting times, reduction in 'did-not-waits' and improved communication [149-151]. Issues such as clinical outcome and cost have received little attention to date.

In Australia, Emergency Nurse Practitioners (ENPs) now exist in some major metropolitan hospitals [152] and the report by Christofis details his personal frustrations working as a junior nurse in the ED seeing long waiting times for minor complaints [153]. The inability of nursing staff to take action on these minor problems drove his interest in becoming an ENP and, sensitively, he describes the ENP role as complementing, not substituting for, medical

services. While ENPs to date have largely been tasked with seeing and treating patients with minor complaints, evidence suggests they are as good as, if not better than, junior doctors [154-156]. How junior doctors would gain this experience if replaced by ENPs has not been raised.

In other areas of speciality practice, formally recognised nurse practitioners are mostly found in major public hospitals and the implementation of such programs has not been without difficulty [152]. Logically, there is a role for such practitioners in rural areas where the shortage of health professionals is more acute. However, the concept of nurse practitioners (or similarly named health professionals) provokes an emotional response amongst some professional groups. The AMA is a strong advocate of doctor led health care but totally rejects the concept of independent nurse practitioners [157]**.** The AMA argues that addressing medical practitioner workforce issues is the solution rather than introducing another tier of health care workers – a point reinforced in this organisation's submission to the Australian Productivity Commission [158]. Many medical practitioners would agree with this, arguing that much of a doctor's time (both in hospital and private practice) is consumed with administrative and regulatory requirements – time that would be better spent on patient contact with the non-clinical tasks delegated to others [159]. The Rural Doctors Association of Australia is more sympathetic pointing out that existing models of health training were failing rural Australia and alternative models of health service delivery must be considered especially in areas such as primary care.

The Productivity Commission in its 2005 report also recommends that nurse practitioners and other health professionals should have an expanded role in providing services that have traditionally been provided by the medical profession [160]. Yong, writing in a recent edition of the MJA, not unreasonably speculates that increasing the number of nurse practitioners may simply exacerbate the already dire shortage of nurses in hospitals and other areas of health care [161]. It also remains to be seen if 'specialist' nurse practitioners are more willing to work in medically under-serviced locations, or, if like their medical colleagues (and their midwife colleagues), they gravitate to large metropolitan institutions for all the same professional and lifestyle reasons.

2.11 Rural training in other specialties

Of necessity, most specialist training takes place in large teaching hospitals where there are sufficient numbers of teachers and available clinical material to meet the accreditation requirements of the specialist colleges. In recent years, some Australian colleges have increasingly acknowledged that there are differences in how their specialties are practised outside large cities. A variety of training and support services now exist to try and improve the retention and recruitment of specialists and procedural GPs in rural areas. Innovative practices such as the 'Flying Surgeon' and 'Flying Obstetrician' services in Queensland have done much to bring speciality services to remote towns too small to support specialist practitioners. The Commonwealth funded *Support*

Scheme for Rural Specialists (SSRS) is a recent initiative aimed at bringing Professional Development and CME activities to specialists who have difficulty in accessing teaching hospital based activities [162].

The *Royal Australasian College of Surgeons* (RACS) now has a specific Rural Surgical Training Program (RSTP) for those surgical trainees intending to practise in rural areas [163]. Trainees selected for this program must demonstrate a commitment to rural surgical practice as well as meet the usual criteria for advanced training. Trainees are expected to acquire basic knowledge and skills in surgical sub-specialties relevant to rural practice including such disciplines as Orthopaedic surgery and Obstetric and Gynaecological surgery. It is expected that a significant part of this training will take place in rural hospitals under the mentorship of approved surgeons. In fact, 'rural context' is a specific component of the curriculum. Although in its infancy, the RSTP has been very successful with six out of the first seven graduates taking up rural positions [164].

The *Australian and New Zealand College of Anaesthetists* (ANZCA), as well as providing training for specialist anaesthetists, also trains GP anaesthetists overseen by a Joint Consultative Committee with the Royal Australian College of General Practitioners. ANZCA also promotes a Rural Anaesthesia Recruitment Service (RARS) that not only serves to help recruitment of specialist and GP anaesthetists in rural areas, but also to provide rural locums and generally raise awareness of rural practice amongst the anaesthetic profession [165].

The *Royal Australian and New Zealand College of Obstetricians and Gynaecologists* (RANZCOG) also has a Joint Consultative Committee with the RACGP and ACRRM that oversees a Diploma training program. This program has existed for many years as a six month course aimed specifically at GPs wishing to gain additional knowledge and skills primarily in obstetrics [166]. This Diploma is now generally regarded as a minimum requirement for rural doctors wishing to practise obstetrics. However, the declining practice of obstetrics in rural areas is related more to lifestyle issues, escalating medical indemnity costs and risks of litigation than the type of training available.

The position of the *Royal Australian College of Physicians* (RACP) – which also oversees specialist paediatric training – has previously made little mention of rural experience as part of specialist training. The RACP recommends that at least three months of the 36 months of basic training be undertaken in a Level 1 teaching hospital or rural secondment site [167]. Anecdotal reports would suggest that such rotations are unpopular with many trainees even though many rural 'base' and regional hospitals would easily meet the requirements for a Level 1 teaching hospital for adult training, and many would also meet the requirements for accreditation for a Paediatric secondment. Keresztes' paper to the ACRRM conference in 2006 highlighted the practical difficulties experienced by rural physician trainees including feelings of isolation, lack of orientation, limited social networking, accommodation issues, and limited education opportunities [168]. Keresztes notes that, while it can be difficult to address all isolation issues, there are

certainly areas in which more can be done to enhance the rural experience for these trainees.

The trend to sub-specialisation in teaching hospitals has meant fewer doctors training as general physicians. The RACP and RDAA acknowledge this may have serious implications for an ageing population and rural areas [169]. A recent letter to the MJA by Simmons *et al* has revealed a more positive note, in Victoria at least, whereby securing additional training posts accredited in rural areas and encouraging for trainees to consider a rural career has resulted in three of the four trainees from 1999-2000 taking up positions as rural physicians [170]. While these numbers are small and as yet are unlikely to be matching the rate of attrition from rural areas, the authors were able to attract Federal-State funding for the additional training positions and it has encouraged them to develop additional recruitment strategies in subsequent years. It is interesting to note that the authors believe the personal touch in approaching potential trainees creates the necessary goodwill to improve rural recruiting.

The sub-speciality of Intensive Care deserves particular mention. The RACP and ANZCA have created a *Joint Faculty of Intensive Care Medicine* (JFICM) and emergency medicine training can also be a pathway to this qualification. Intensive Care is a speciality predominantly taught and practised in tertiary hospitals. Hore *et al* argue that the delivery of such care is different in rural settings where there are fewer specialists and where sustainability of some specialties is difficult. They reject the popular notion that the different level of

care in rural areas equates to a lower standard of care. They propose an integrated and collaborative approach from retrieval medicine, emergency medicine, anaesthesia, internal medicine and surgery can lead to a multidisciplinary 'critical care' speciality that has the potential to provide high level intensive care services in rural areas [171]. Such a model has already evolved in some larger NSW regional hospitals. Not surprisingly, this approach has been viewed cautiously by intensive care specialists in metropolitan hospitals where economies of scale and medico-legal concerns increasingly see higher level services contracting to tertiary hospitals [172].

2.12 International practice

Internationally, there are very similar issues in countries with comparable health systems to Australia. Various programs and models have been put forward in an attempt to provide relevant emergency medicine training to doctors working in predominantly non-specialist environments. High numbers of Overseas Trained Doctors, often from developing countries, are a feature of recruitment to provide medical services in rural areas and other underserviced parts of New Zealand, Canada and the United States [173].

In *New Zealand*, medical training is very similar to the Australian model. Undergraduate training in New Zealand includes a 'pre-intern' year that is generally been regarded by employers as ensuring new graduates are well prepared for a smooth transition to the workforce. New Zealand is now the

only country from which medical graduates are eligible for full registration in Australia without sitting additional examinations. Like Australia, New Zealand is heavily dependent on OTDs to provide medical services in rural areas. Even keeping the OTDs in these areas can be difficult due to the usual problems of spouse employment, children's schooling and accessing continuing medical education as well as the more obvious problems of cultural isolation [174].

Speciality training in emergency medicine is provided by the Australasian College for Emergency Medicine with an identical pathway and process to that in Australia leading to the FACEM upon successful completion of the training and examination requirements. Rural and regional New Zealand is in a similar situation to Australia where most emergency medicine services are provided by non-specialist doctors, however, there are specific programs that provide additional training in emergency medicine for these non-specialists.

The University of Auckland offers a Postgraduate Diploma in Community Emergency Medicine by distance learning which is usually completed over two years. The Diploma is aimed at GPs working predominantly in the Community setting but is also relevant to Medical Officers of Special Scale (MOSS) working as salaried doctors in public hospitals. The Diploma has six core modules of theoretical and practical instruction in surgical, medical and paediatric topics, and optional modules in research, immediate care and health management [138]. The Division of General Practice and Primary Health Care within the Auckland University Faculty of Medical and Health Science, also

offers an ‘Accident and Medical Care’ course which is aimed at non-specialist practitioners. This has been developed in conjunction with the New Zealand Accident and Medical Practitioners Association (AMPA) [175]. The Medical Council of New Zealand now recognises ‘Accident and Medical Practice’ as a distinct branch of medicine. The course is one year part time and is available by distance learning including some course work and practical skills weekends. Participants who have met the assessment requirements receive a ‘Certificate of Completion’.

In *Canada***,** changes in the medical workforce may have profound effects on access to care in the near future with more women graduating, doctors working fewer hours, and a large number of doctors nearing retirement age [176]. The problem of attracting new physicians to rural practice also features prominently in the Canadian literature. Renouf from Newfoundland echoes the sentiments of many colleagues in highlighting the diversity and challenge of rural work which could attract more physicians if today’s lifestyle expectations could be met [177]. Accessing CME in rural Canada shares the same challenges as Australia [113].

Canada also has a heavy reliance on graduates from foreign medical schools although there is now increasing difficulty in attracting doctors from ‘traditional’ countries like South Africa [178]. The poorer and less attractive Canadian provinces such as Newfoundland and Saskatchewan employ much larger numbers of provisionally registered international medical graduates than the wealthy provinces of Ontario and Quebec – leading to the speculation that

these wealthy provinces are mostly interested in recruiting fully licensed IMGs who have already been 'screened' by working in less attractive areas [179]. Like Australia, Canada has also used financial incentives in exchange for return-of-service for physicians to work in rural and underserviced parts of the country. The report by Sempowski found that these programs have been successful in the short term but less successful with longer term retention [180].

The establishment of a new 'rural' medical school in northern Ontario made headlines in the Canadian press but will not graduate its first doctors until 2010. Cynics argue that the new school is neither northern nor rural – being administratively located in a large city in a heavily populated part of southeastern Canada. It has also been argued that the money could have been spent on giving existing medical schools a greater rural focus. Nevertheless, the school will focus on students from rural backgrounds and teaching will be highly decentralised throughout rural Ontario [181]. The Chair of Rural Practice in Ontario, Dr Hutten-Czapski, has been quoted as saying *"Changing the postcode on the ivory tower by itself does not change the physician distribution"*. He asserts that it will still require a mix of appropriate student selection, making medical schools more affordable, and having a rural based curriculum, to improve physician numbers for rural Canada [182].

The University of British Columbia (UBC) has also established campuses of the UBC medical school in the cities of Prince George and Kelowna. New Brunswick will reportedly open a new medical school in the city of Moncton.

While these smaller cities are hardly ‘rural’, they do represent a significant shift in thinking that recognises a high standard of training can be provided outside the major metropolitan areas.

Unlike Australia, family medicine and speciality training is provided through University based ‘residency’ programs in university affiliated hospitals and clinics. After graduation, new doctors apply to join a university residency program – there is no equivalent to the Australian ‘intern’ year. (Somewhat confusingly, in North America an ‘internist’ is an Internal Medicine Specialist – or ‘specialist physician’ in Australian terminology). The number of medical students choosing Family Medicine as a career is declining with more emphasis on entering specialist disciplines, especially procedural disciplines that generate higher incomes. This has led to concerns by some educators that there will be a fewer health care providers with a ‘generalist’ approach to understanding a patient’s total health needs and options within a community context [183].

A ‘two tier’ system of training emergency physicians has existed in Canada for some time. The Royal College of Physicians of Canada awards a Fellowship (FRCPC) in emergency medicine after five years of training with a similar educational track to the Australasian College of Emergency Medicine. Parallel with this, the Canadian College of Family Physicians has awarded a Certificate of special competency in Emergency Medicine (CCFP-EM) since 1982 requiring an additional period of 12 months training beyond the usual two year training residency for Family Physicians. This Certificate has a

greater emphasis on clinical expertise whereas the Fellowship includes non-clinical aspects such as administration, research, teaching, pre-hospital care and toxicology [184]. Much greater numbers of Canadian emergency physicians have obtained their qualifications via the CCFP-EM track (1555 physicians over 22 years) compared with the FRCPC track (468 physicians over 20 years) [185]. Not surprisingly, there are very few of these specialist emergency physicians in rural Canada [186].

There remains a general shortage of emergency physicians in Canada and Ducharme argues that it makes no sense to limit clinical positions to holders of the Fellowship. He also maintains there needs to be a greater emphasis on critical care education in the training of emergency physicians [187]. A recent survey by Shepherd and Burden of CCFP-EM graduates over 20 years at the University of Western Ontario revealed most ended up in practising purely EM whereas at the outset of their training, about half indicated their intention was to practise a blend of EM and Family Medicine [188]. It is speculated that this is a result of encouragement by their teachers to pursue a full time career in EM – but raises potential conflict with Family Medicine trainees who see valuable training positions occupied by residents who are unlikely to be Family Physicians. Chan also noted that CCFP-EM graduates are more likely to be practising in urban teaching hospitals than rural hospitals [189]. Chan speculates that these physicians may have had no intention of practising family medicine in the first place and were attracted by the shorter training program for CCFP-EM than the specialist track. Marsden *et al* in their study of

ED staffing requirements in British Columbia found that ED heads overwhelmingly preferred to recruit CCFP-EM physicians [190].

Since 1994, the Canadian Association of Emergency Physicians (CAEP) has been grappling with the workforce issues of delivering emergency medicine services in rural, remote and isolated facilities. The CAEP through its Rural and Small Urban Committee produced a substantial document in 1997 of recommendations for improving the delivery of emergency medicine in these facilities [186]. Among the wide ranging recommendations, the CAEP stressed the importance of adequate staffing, training and continuing medical education for rural emergency physicians. The CAEP acknowledges that funding issues will need to be addressed to advance these recommendations and this remains an ongoing problem for health system managers in the current climate of limited financial resources. There is no doubt though that Canada, like Australia, will continue to rely on Family Physicians without formal EM qualifications, to deliver most of the emergency care in smaller communities. Doubts have been expressed on the adequacy of emergency medicine training of these doctors and recommendations have been made to increase the amount of EM training and include more sub-speciality exposure, such as orthopaedics, to Family Medicine residency programs [191].

In the *United States*, the delivery of emergency medical care is not only complicated by the familiar problems of rising demand and falling capacity, but also the requirement for patients to have adequate health insurance to receive medical care. Some 47 million Americans lack any form of health

insurance forcing the US Federal government to legislate to ensure life saving treatment is provided regardless of ability to pay [192].

Workforce studies have shown a similar situation where the majority of rural emergency physicians are non-specialists [193] but debate continues as to how the American College of Emergency Physicians (ACEP) can help rectify this. Williams *et al* have challenged the professional emergency medicine organisations in the US (ACEP, the Society of Academic Emergency Medicine, the American Board of Emergency Medicine, and the Emergency Medicine Residency Review Committee) to embrace an expanded view of emergency medicine to address workforce issues in rural areas and accept the reality that non-specialists have an important role in delivering emergency care [194]. ACEP is looking at ways rural emergency departments can encourage board certified emergency physicians to manage or provide medical direction. Models of rural rotations for students and junior residents have been put forward as well as economic incentives.

The possibility exists that a combined emergency medicine/family practice residency program will be established although this would involve a much longer training commitment than a single residency program [195]. In one US state, a simpler one year fellowship in rural family and emergency medicine has been running for some years after being initiated by a group of family practice educators in response to the needs of rural and under-serviced communities [196]. In another state, consideration is being given to offering

post residency training in emergency medicine, specifically trauma management to address areas of deficiency in family practice training [197].

An innovative service has been developed at the University of West Virginia with the Center for Rural Emergency Medicine (CREM) established in 1992 [198]. CREM provides a broad range of outreach, education and research programs relevant to rural emergency medicine throughout West Virginia. It highlights lack of continuing education, lack of financial and logistic support, lack of research, high morbidity and mortality, and challenging climate and geography as the unique challenges of rural emergency medicine.

In the *United Kingdom*, 'Casualty' wards with varying levels of services and mostly junior staffing started to evolve into 'Accident and Emergency' departments (A & E) in the 1960s. The British Association for Emergency Medicine (BAEM) developed from the Casualty Surgeons Association which was formed in 1967. 'Accident and Emergency' as a speciality became a reality in 1972 but for a number of years lacked the profile and respect of the long established specialties. The Faculty of Accident and Emergency Medicine was established in 1993 with the awarding of its first Fellowship by examination in 1996 [199]. As well as those with Fellowship qualifications, there are 'Staff Grade' and more experienced 'Associate Specialists' in emergency medicine. These positions are grouped as 'Non-consultant Career Grade' appointments and form the largest single element of the emergency medicine workforce [200]. Many of those occupying Staff Grade positions have interests in other areas of medicine such as general practice and sports

medicine. Unlike Career Medical Officers in Australia, doctors appointed to these positions must meet minimum requirements of postgraduate experience and time in emergency medicine.

The demand for emergency medicine services has continued to increase resulting in the development of Minor Injury Units and Walk-in centres to relieve pressure on major units. Long waiting times and worsening Access Block had been a feature of the National Health Service in the 1990s but various initiatives to improve funding, staffing and system problems have seen a marked improvement in the process of emergency care in recent years [201]. Central to much of this has been an improvement in the numbers and availability of senior doctors to provide early assessment of emergency cases – echoing earlier reports such as that by Dyas *et al* that identified the need for improved education and 'consultant led' services for trauma care [82].

While the trend towards centralisation of services in larger centres has produced obvious improvements by economies of scale, there is still disquiet that rural areas of the UK have increasing difficulty accessing emergency care in a timely manner. Rural communities are generally less geographically isolated than those in Australia but similar issues of increasing specialisation and closure or downgrading of smaller facilities has a flow-on effect to all levels of health care particularly remote parts of the Scottish highlands and island communities [202]. Mungall's argument for a balance between 'cost-effectiveness' and 'accessible and equitable' services has been noted earlier [47]. Interestingly, Alberti's 2004 report on *Transforming emergency care in*

England makes mention of certain areas needing special attention including mental health, services for older people, and services for children [201] – but no mention of rural and remote areas in the country.

In the *Republic of South Africa* (South Africa), there is an overall shortage of health workers exacerbated by the exodus of many professionals to Australia, Canada, New Zealand and the UK following the collapse of the apartheid era. South African hospital services are still coming to grips with huge differences between the 'third world' standards in black townships and rural areas compared with the affluent 'first world' standards in metropolitan teaching hospitals [203]. Despite various incentives and the importing of foreign doctors from other African countries, the shortage in rural areas remains particularly severe. In one study, poor working conditions, run down hospital infrastructure, poor accommodation, low remuneration, lack of career structure and health department bureaucracy, were the frequently cited issues for dissatisfaction with rural service [204]. High levels of violent crime and firearm ownership ensure emergency medicine services are constantly busy.

While emergency medicine is a relatively new speciality in South Africa, there are now steps to incorporate emergency medicine training in undergraduate curricula in combination with forensic medicine, trauma and anaesthesia. MacFarlane and Green-Thompson report that students have responded very favourably to this program which hopefully will lead to increased involvement in clinical emergency medicine [205].

In *developing countries*, the delivery of health care is highly variable and often restricted by serious lack of funding or the availability of aid from more wealthy countries. The loss of health care workers to meet shortfalls in wealthier countries exacerbates these health problems – particularly in Africa [173]. In developing countries, emergency medicine has often lagged behind progress in other health fields although there is now an increasing realisation that funding of trauma prevention programs and effective emergency medicine services can have a substantial impact on more appropriate and effective utilisation of available hospital resources [206].

Support by Australian emergency physicians in Papua New Guinea (PNG) has led to the development of a curriculum and four year training program for hospital doctors in that country with emergency medicine as part of the hospital generalists' speciality [207]. Previously, only very rudimentary emergency medical care was available for the local population with a desperate shortage of trained staff. In other South Pacific nations however, the situation remains perilous. The poignant article by Sade reflects on his personal experiences as the sole (PNG trained) doctor providing emergency medicine services in the Makira Ulawa Province of the Solomon Islands and what could be achieved with better training, better support and better resources [208]. Walpole's observations while providing 'first world' level emergency medical care for Australians working in the Solomons, only serves to emphasise the enormous gap between the levels of care in affluent western countries and developing countries [209].

2.13 Workforce planning

The rural workforce in Australia has been extensively studied and has confirmed what most of the rural population would already know – compared with urban areas, there are fewer health professionals overall, and even fewer specialists in rural areas. Rural GPs are leaving the workforce faster than their city colleagues, often relocating to more urban practice at a greater rate than retirement [98]. The latest report from the Australian Institute of Health and Welfare (AIHW) in December 2006 shows that the exodus of health professionals from rural areas continues [210]. Despite an overall rise in the number of medical practitioners in Australia, the weekly hours worked continues to decrease. Translated into 'full time equivalent' (FTE) practitioners, only metropolitan and inner regional areas showed an increase in the FTE medical workforce per 100,000 population between 2000 and 2004. Outer regional, remote and very remote areas all showed a fall.

The workforce is predominantly male – especially in the more senior positions – and overseas trained doctors constitute a very high proportion of the workforce. This proportion becomes greater with increasing 'rurality' and remoteness [64, 211, 212]. There are very few indigenous health workers despite the multitude of serious problems faced by aboriginal people [50]. Perhaps the very nature of dealing with multiple complex problems in disadvantaged aboriginal communities is a strong disincentive to young practitioners taking up such a rural career [213]. Even 'desirable' rural areas

of Australia have significantly fewer specialist services than metropolitan areas [214]. Accessing those few specialists is a major problem in itself [215].

It is not just medical practitioners that are in short supply – nursing and almost every other health discipline is facing similar problems of increasing demand for services, shortage of practitioners in rural areas, lifestyle expectations, and recruitment and retention difficulties agaimst a background of a global shortage of health professionals [216, 217]. The Productivity Commission report noted the submission from the Department of Health and Ageing that there are now almost as many *formerly* registered nurses in Australia as *currently* registered nurses – begging the question as to why so many have left the workforce [160]. The Australian Dental Association has called on health disciplines to work together to address these complex workforce issues [218].

Numerous initiatives are being explored to try and attract health professionals back to rural areas [219]. The Australian Government, publicly at least, believes some of these initiatives are starting to bear fruit quoting figures that suggest an increasing number of specialists in rural areas but also acknowledging that a sustainable rural workforce requires long term strategies targeting retention as well as recruitment [41].

The 1998 MJA editorial by Cameron focused on the *sustainability* of rural practice – a concept that took into account the needs of the individual, the practice environment and the community [40]. Little seemed to have changed by the time of the later MJA editorial by Wearne and Wakerman in 2004

which noted the various initiatives being developed but questioned the impact these would have on the rural and remote workforce [38]. In particular, they noted that simply sending registrars to work in areas of need did not guarantee a positive view of rural practice and may simply reinforce the desirability of practising in the city. Furthermore, they concluded that high quality training, specifically for rural areas, was necessary to address workforce shortages. The recent article in the Weekend Australian on the 'medical vacuum' in rural areas also highlighted the complex medical problems in rural communities and the progressive exodus of practitioners – especially proceduralist GPs – from these areas [213]. Contributors to this article also noted that many of the remaining doctors were working less and the very long lead times for benefits to be felt in rural areas from additional GP and specialist training positions.

The Federal and Queensland Governments currently offer a variety of bonded scholarships and medical school places worth up to $23,000 per year to medical students in return for varying commitments to work in rural or other underserviced areas [220]. There can be significant penalties for not fulfilling the contractual obligations. This approach has had a mixed reaction as previous bonded scholarship schemes have had limited success in attracting graduates into rural areas. The Australian Medical Students' Association (AMSA) has been particularly critical of such schemes arguing that, once bonded, there has been little support for these students and this may contribute to negative perceptions of rural medicine [221]. In the same article in *Australian Rural Doctor*, the Queensland Health Department admits that such

schemes are more relevant to general practice and do not sit easily with those who may wish to pursue specialist training.

Dunbabin *et al* looked at the NSW Cadetship program which offered bonded scholarships with the aim of improving workforce shortages in rural hospitals. Their study noted that 43% of 77 cadets who entered the scheme before 1999 were still working in rural locations in 2004 although half of these were in large regional centres including the very few who had undertaken specialist training [222]. The Canadian study by Sempowski found that such programs helped short term recruitment but had less success with long term retention [180]. The AMA believes many of the bonded programs are unfair and counterproductive, but at the same time states *'the profession has a responsibility to ensure that there is equitable community access to a well trained medical workforce'* [50]. Non-bonded scholarships such as the John Flynn Scholarship Scheme, administered by ACRRM, are an attractive 'softer' option but do at least require the students to undertake regular rural placements during the undergraduate years.

In response to the recent difficulties in staffing rural and regional emergency departments, the Queensland Government has also substantially increased the remuneration and fringe benefit packages being offered for medical and nursing staff to work in these areas [223] – with the media speculating that this risked a further distortion of the emergency medicine market place, aggravating shortages in other states, and causing resentment amongst lower paid emergency physicians [224]. In an ongoing bidding war for emergency

physicians, recruiting agencies are also advertising remuneration of $5000 – $10,000 *per week* (plus travel, accommodation and meals) for doctors to provide services to Australian personnel working in the Solomon Islands and East Timor [225]. New South Wales has attempted to entice specialist emergency physicians to fill shifts in rural and regional hospitals by offering substantial bonuses [226]. This has not been well received by some physicians who believe the requirement to reduce supervision, teaching and other non-clinical time to free them up for more patient contact time is counter productive and diminishes the ability to train the next generation of emergency physicians.

The issue of medical workforce planning appears to be much more complex than first thought. The changing profile of Australian medical graduates, attrition from the workforce, re-allocation of tasks to other professionals and re-skilling the workforce have received little attention to date [34, 227]. While evidence is accumulating that active encouragement of students from rural backgrounds is leading to more successful recruiting of GPs to rural areas [228], it remains to be seen if this translates into greater *sustainable* numbers of health professionals in these areas. Despite a recent increase in GP training positions, a large number of *rural* based positions are reportedly remaining unfilled [169].

GPs appear to rate issues of remuneration, professional support, and after-hours and on-call workload as the most significant issues in recruiting and retaining the rural workforce [219, 229]. Interestingly, a study by Laven *et al*

suggested that a partner or spouse with a rural background was a more influential factor than the GP's background in determining practice location [230]. Gardiner *et al* identified work related stress as well as fewer colleagues for professional support as significant factors in those GPs who were seriously considering leaving rural practice [37]. In 1996 Kamien identified similar issues in a report on outcomes of rural doctors' stated intentions a decade earlier on staying or leaving rural practice in Western Australia [231]. While there was certainly evidence of dissatisfaction with rural practice, Kamien noted that half of the 'intended leavers' had stayed in rural practice while only one quarter of the 'intended stayers' had left – suggesting that the 'stayers' had been able to overcome those issues that led to practice dissatisfaction. Perhaps reflecting their limited experiences of life events, medical students rated professional realities of peer support, work conditions and work variety as most important. Issues of locality, study opportunities and family needs were not considered major issues by the students [232].

Rural specialists also identify similar issues as the negative aspects of their practice [214]. Like GPs, the rural surgical workforce has seen a decline in numbers with a diminished junior input to the ranks of an increasingly ageing workforce. Breuning and Maddern's 1997 profiling of 500 non-metropolitan surgeons revealed issues of onerous on-call, lack of locum cover, peer isolation, family education and spouse opportunities as barriers to sustaining numbers in rural areas [233]. Most specialist medical training takes place in tertiary hospitals and when a specialist moves from the city to a rural area to provide clinical and teaching services, it is sufficiently unusual as to be

newsworthy and make the pages of the local newspaper or warrant a special article in the medical journals of the day [234-236].

Increasingly, specialist services require sophisticated support systems as well as the necessary 'critical mass' of population to be viable – with the inevitable result that the higher levels of specialisation will always be based in the larger centres. GP substitution for specialist services is, of necessity, common practice in rural Australia, despite government efforts to improve specialist outreach services, increase numbers of specialist training places, and provide educational support for rural specialists [162]. The RDAA argues that, in rural areas, the concept of team based 'specialised' care is more relevant than individual based 'specialist' services [121]. AMWAC figures suggest that only 2.5% of emergency specialists practise in rural areas where 28.7% of the population live – a lower proportion than most other specialties [237].

Katekar in her article in 2003 raised a previously unrecognised factor highlighting the value of experienced in-house junior staff when recruiting and retaining specialists in rural hospitals [238]. Her observation, based on personal experience at a regional Tasmanian hospital, was that senior House Medical Officers (HMOs) or specialist registrars substantially reduced the workload (particularly after-hours) of rural specialists and this had been a significant incentive that needed more recognition. Simmons *et al* also noted that recruitment of additional advanced physician trainees in rural Victoria had a substantial benefit, not only in reducing the workload on other doctors, but

also in providing additional education and supervision for more junior medial staff [170].

Undoubtedly, the establishment of Rural Clinical Schools (RCS) in providing a positive learning experience in undergraduate medical training, appears to be having an effect on encouraging health professionals to consider a career outside the city environment [239-241]. Evidence is also accumulating that medical students in a rural setting have greater exposure to managing common conditions and undertaking common procedures compared with students undertaking all training in urban teaching hospitals [242]. Encouragingly, Veitch *et al's* review of the first graduates from the new James Cook University (JCU) School of Medicine in Townsville, showed the majority (64%) had chosen intern positions in non-metropolitan areas [241]. This proportion was almost identical to the students expressed intentions on medical school entry.

In contrast, Orpin and Gabriel studied first and final year medical, nursing and pharmacy students at the University of Tasmania [232]. They showed a significant relationship between rural origin and rural practice orientation amongst first year students, but this relationship was weaker amongst final year students – suggesting this 'rural' connection is not as significant as many would hope. Their study also identified a significant number of students were influenced *away* from a rural/remote career by rural undergraduate placements.

Somers and his colleagues from the Monash University School of Rural Health looked at number of years of rural upbringing to develop a sense of rural background. Of three distinct groups, they observed strong negative attitudes amongst those students with no rural background and strong positive attitudes amongst those with more than 15 years' rural background – however the broad group with 1-14 years of rural upbringing were much more ambivalent with Somers suggesting this is the target group for encouraging interest in rural medical practice [243].

A note of caution is also sounded by Denz-Penhey and her colleagues who studied RCS student perceptions and participation in rural communities in relation to the length of the students' placements in these communities [244]. Their results suggest that there is more to a 'good' rural experience than just the teaching and learning opportunities. Engagement with, and emotional attachment to, a rural community comes with time and this cannot be achieved with short rotations. These sentiments have been echoed in the recent article by Han and Humphreys who undertook detailed interviews of 57 OTDs working in rural practices [245]. The results of their relatively small study showed that a supportive work environment and a welcoming community were very significant influences in retaining these doctors in a rural area. Kearns *et al* reported very similar findings when looking at what attracted OTDs to rural practice in New Zealand [174].

Tolhurst *et al* looked at this issue from the perspective of rural doctors with *urban* backgrounds who constitute up to two thirds of the rural medical

workforce. These researchers identified that some ‘urban’ students are predisposed to rural practice for a variety of reasons including familiarity with rural practice (mainly as a result of undergraduate exposure), interest in generalist rather than specialist practice, altruistic motives, positive rural role models, and interest in leisure activities. They also noted that social relationships can enhance or detract from following through rural interests [246]. Not surprisingly, medical students attending ‘established’ medical schools show less interest in pursuing a rural career.

Wright *et al* in a recent article looked at career preferences of 507 of these students and found that barely 9% identified rural family practice as their career choice – with most intending to pursue speciality practice particularly paediatrics and surgery [247]. Emergency medicine was the preferred career choice of only 8% of the respondents. It is worth noting that time spent in a rural community was a positive predictive factor but location of high school completion was not.

The report from Newfoundland by Mathews *et al* found that the establishment of a medical school in Newfoundland in 1967 had made a very substantial contribution to the number of physicians working in that province [248]. Mathews’ research also suggested that these students had a greater loyalty to Canada – but not necessarily rural Canada – than specifically to Newfoundland.

While undergraduate training in rural areas has been – and continues to be – extensively studied, the same cannot be said for postgraduate training and it remains to be seen if rural areas can provide a high standard of training that is relevant for rural practice [38, 249]. As noted earlier, physician trainees in rural areas have raised a number of personal and professional concerns that cast doubt on the benefits of such rotations [168]. Graduate nurse programs appear to have similar difficulties. The findings reported by Lea and Cruikshank [217] not surprisingly showed that nurses with previous rural connections and positive rural experiences as undergraduates were more likely to enrol in rural graduate nurse programs. However lack of permanent positions on graduation and dissatisfaction with teaching activities led to nurses dropping out of these programs.

Eley and Baker also sounded a note of caution on apparent declining interest by some rural medical graduates in taking up intern positions at their training hospitals despite very positive undergraduate experiences. Major areas of concern included ‘unsupportive workplace environment’ and ‘inadequate professional development opportunities’. They also speculated that a relative lack of specialist training opportunities may be affecting internship choice [250]. A study by Peach suggested that doctors who did their internship at Ballarat Hospital (a large regional hospital in western Victoria) were more likely to continue general practice in non metropolitan areas on completion of their training than those who trained in the city [251]. None of that intern cohort however, had returned to specialist practice in a non-metropolitan area.

Veitch *et al's* study on new graduates from JCU School of Medicine showed a *decrease* in general practice intention and an *increased* interest in specialist practice by the time of graduation [241]. Puzzlingly, there was a marked reduction in interest in surgical specialities and paediatric medicine – perhaps reflecting the degree of enthusiasm of the teaching program in those disciplines. Their study also noted an 'almost doubled' increase in intention to pursue a career in emergency medicine – but this was only an increase from three students to five students. It remains to be seen if these intentions are carried through the subsequent years of postgraduate training.

Recruitment of Overseas Trained Doctors or International Medical Graduates (IMGs) to meet shortfalls in under-serviced Australian communities, is being increasingly used [64]. OTDs on temporary visas now make up a substantial proportion of the rural medical workforce, particularly in salaried hospital positions and single doctor communities. These doctors face significant barriers in assimilating into rural communities – not only is the practice of medicine likely to be different to their home country, but the cultural and language differences can also be daunting prospects for other family members. As a group, OTDs are becoming increasingly vocal on issues relevant to their registration, education and working conditions in Australia. A professional body, the Australian Doctors Trained Overseas Association (ADTOA) has been formed to represent the interests of OTDs and actively promotes employment opportunities in 'areas of need' as well as speaking out on political issues relevant to OTDs [252]. Recent media reporting on adverse outcomes in Queensland hospitals has resulted in much closer scrutiny of the

training and qualifications of doctors trained outside Australia and a realisation that there is considerable variation within the OTD workforce. Ironically this has seen the resignation of some doctors with foreign specialist qualifications who were recruited specifically to work in areas of need but had major concerns as to the quality of care provided by others who they had to oversee [14].

For many years, the majority of 'foreign' doctors were from the United Kingdom, Republic of Ireland or the Republic of South Africa due to reciprocal recognition of their qualifications. This is no longer the case and Australian trained doctors are also now regarded as 'foreign' doctors in these countries. Increasingly, the OTD workforce now comes from countries with vastly different medical training structures to Australia [253]. Hays argues that the IMG workforce is largely 'invisible' with no single organisation monitoring recruitment, retention or educational qualifications and this is not in the best interests of the workforce or the quality of healthcare [254].

The ethics and morality of active recruitment of foreign doctors has recently been questioned by some professional bodies including the AMA [255, 256]. The AMA and others have argued that it is not appropriate for a wealthy country like Australia to be actively recruiting doctors and draining resources from developing countries where medical services are often in a desperate situation [257-259]. A similar situation also exists for nurses and other health professionals [257]. When foreign doctors have come to Australia to further their training in specialist areas, there can be a marked reluctance to return to

their own country after completion of training because of the personal, financial and professional opportunities in Australia.

The situation is little different in other 'first world' countries. The UK, US, New Zealand and Canada all actively recruit overseas trained doctors for 'areas of need'. Paradoxically, the improving economies in South Africa, Ireland and India have reduced the available recruitment pool from these countries [260]. South Africa in fact is both an exporter of health workers to wealthier countries and an importer from poorer African countries [261]. In some African countries, the number of health care workers is actually shrinking due to medical migration to wealthier countries, leading the British Medical Association to severely criticise the UK and other developed countries for 'failing to make adequate provision for their own needs' [262]. This has also been the subject of articles and a recent editorial in the New England Journal of Medicine which notes that *'managing international medical migration ultimately will require global political consensus'* [173, 261]. The editorial goes on to note that the World Health Organisation has announced the 2006 World Health Report is intended to provide a global action agenda for human resources in health.

The Australian Rural and Remote Workforce Agencies Group (ARRWAG) has recently published a report on the recruitment and retention of OTDs in the rural workforce [263]. While ARRWAG states that it is *'committed to supporting any initiatives to further improve the recruitment, recognition and retention of OTDs in rural Australia'*, the Group does acknowledge the need

for longer term solutions to address workforce shortages but does not go into detail on this. Perhaps showing some lack of insight, ARRWAG recommends that the focus on OTD recruitment should be on the UK and Europe – countries where there are already shortages of specialist medical practitioners and which actively recruit in Australia as well as other 'first world' and developing countries.

The recent 2004 AMWAC report on the public hospital medical workforce is relevant as the majority of emergency medicine practitioners work within the hospital system. Hospitals providing data to this report identified the recruitment and retention of sufficient numbers of medical staff as a major ongoing issue. Respondents felt it was unlikely that the situation would improve in the near future, and in fact further shortages were likely [64]. Skinner claims that there are over 900 junior doctor vacancies in NSW alone – most of these in emergency medicine [159]. Balancing service provision and training, addressing quality and safety issues, and allowing for the aspirations and expectations of new entrants to the workforce, are increasingly problematic. The end result has been the need to employ a greater number of doctors to provide the same amount of care but inevitably, training additional numbers to the medical workforce lags behind the immediate requirements. While the 2005 AIHW report on the Medical Labour Force of 2003 offered some glimmers of hope [264], the later 2006 AIHW report on the 2004 workforce was less optimistic [210]. Despite the continuing decrease in the average number of hours worked by medical practitioners, the increased total number of practitioners meant that, across the country, there was an overall

increase of FTE practitioners from 270 per 100,000 population in the year 2000, to 279 in 2003, and 283 by 2004. However, most of the increase was in metropolitan areas with a smaller increase in inner regional areas. Outer regional and remote areas saw a continuing fall in FTE numbers. The total number of specialists also increased though this was not consistent across the selected specialties studied. Once again, most of the increase was in the major cities. The growth of emergency medicine specialists was relatively high and occurred mostly from 2000 to 2001. There was a small increase in specialists in regional and remote areas between 2000 and 2004 although there was a decrease in the numbers of specialists in training in these areas – supporting the view that speciality training is still very much the province of large metropolitan hospitals.

Joyce and colleagues used statistical simulation to look at the projected medical workforce to 2012 [265]. This took into account recently announced increases in medical school places and intake of foreign graduates. Adjustments were also made for declining working hours, early retirements and increasing movements to non-clinical activities. They predict that the total general practice workforce will continue to decline although the specialist workforce will show steady growth.

Training additional doctors is not without problems. Olson and colleagues looked at the availability of patients for student teaching at teaching hospitals in the Newcastle area. Their conclusion was that barely one third of hospital patients were accessible to students on any given day – too few to provide the necessary clinical exposure to the student population of the University of

Newcastle [266]. The greatest barrier was the number of patients deemed 'unfit to be seen' (approximately 25%) – perhaps the very patients with the medical problems relevant to student teaching. Crotty's editorial in the same 2005 issue of the MJA noted that evolving practices such as reduced length of stay, same day surgery, hospital-in-the-home programs and increasing privatisation of outpatient clinics and some surgical procedures, all contributed to increasing competition for the available 'clinical material' [267]. These shortages affect not just undergraduates, but also those on speciality training programs and OTDs preparing for AMC examinations.

A later MJA editorial in 2006 by Dahlenburg [268] and the report by McGrath [269] in the same issue also examined difficulties with undergraduate training programs and lamented the lack of action in addressing integration of education and training. Existing systems are under resourced and tensions between the various players are hampering further development. The need for a co-ordinated approach to education and training appears long overdue. Dahlenburg also looked at the different systems in Canada and the UK which may well have relevance for an overhaul of Australian medical training.

The New Zealand situation is very similar to Australia with additional concern expressed that a depleted rural workforce may not have the capacity to take on the challenge of becoming teachers, supervisors and mentors to new students [270]. These sentiments are also echoed in Canada by Renouf from Newfoundland pointing out the paradox of 'having to do everything without

backup' versus the rural attraction of 'getting to do everything' while having a preceptor [177].

In recent years, there has been increasing interest in prevocational training – the time between graduation and commencing formal training programs. Parnis' article in 2005 drew attention to "*how best to combine the training element of these years with the essential role of caring for patients with adequate support and supervision"* [271]. He highlighted the potential conflict between the service pressures of employers and the employees' needs for professional development. He also re-affirmed the AMA position of protected time for teaching and non-clinical activities for both junior doctors and senior clinicians.

Postgraduate medical education is perhaps even more complex with multiple players including specialist colleges, universities, state and national health departments, local health authorities, and postgraduate medical institutes all playing variable roles in teaching, accreditation, funding and recognition of these processes. The article by Dowton *et al* [269] sought to examine these various strands as well as practices in other countries. Like Dahlenburg and McGrath, Dowton and his colleagues identified a need for a co-ordinated governance of postgraduate medical education and training, including *'particular attention to the needs of rural, regional and outer metropolitan areas in major capital cities'*.

While AMWAC has been the principle body charged with producing detailed analyses of the existing and projected medical workforce in Australia, the Australian Government, through the Council of Australian Governments (COAG) announced in March 2005 that the Productivity Commission would undertake a research study on issues impacting on the health workforce in Australia over the next 10 years. The terms of reference included the particular needs of rural areas and also access to GP services on weekends and after-hours.

In the report issued in December 2005 [160], the Commission noted that medical shortages remain despite a growing workforce and increasing numbers of OTDs. The maldistribution between urban and rural areas is significant. The Commission also noted that there is limited clinical training capacity that is restricting the expansion of many professions, and a lack of co-ordination between education, training places and service delivery requirements. Specifically in relation to rural and remote areas, the Commission notes, yet again, the limited access to health professionals and the well known difficulties of recruitment and retention of many of these professionals. Among a number of recommendations, the Commission supports a strong focus on education and training opportunities in rural and remote areas. Somewhat ominously, the report found that there had been limited evaluation of which approaches improved outcomes in rural areas and recommended better evaluation to determine effectiveness of these different approaches. It remains to be seen if the Productivity Commission

recommendations generate action to improve the overall effectiveness and distribution of the health workforce.

2.14 Summary

The literature suggests that the nature of the rural workforce is undergoing rapid change. An ageing workforce, doctors working fewer hours, loss of procedural skills, greater proportion of women in the medical workforce, large numbers of overseas trained doctors, threat of litigation, stress, burnout and lifestyle issues, all contribute to a complex picture of the future workforce. The impact of additional undergraduate places in Australian medical schools and the flow-on effect of rural clinical schools remains to be seen. Workforce projections support the view that there will continue to be a shortage of health professionals in rural and regional areas and, for the foreseeable future, emergency medicine services in rural and regional Australia will continue to be provided largely by non-specialist doctors. With the exception of general practice, postgraduate training in rural areas remains very limited.

The literature review also reveals that there are many competing models of training for emergency medicine provided by a diverse array of organisations but, in Australia at least, little agreement, co-operation or co-ordination between the providers. The literature does not reveal if these training schemes are inadequate *per se*, or merely not being adequately *accessed* by the

emergency medicine workforce. Little work has been done on evaluation of existing educational programs.

The literature, and especially the popular press, makes reference to tension between health professionals, employers, professional organisations and government bodies on resources and levels of service relevant for rural areas. Alternative methods of service delivery and models in other countries, in particular New Zealand and Canada, may have relevance for Australia.

It should be noted that there is a paucity of data on quality of emergency care, adverse events and health outcomes in rural and regional areas and this is an area that requires further investigation.

In summary, the literature review appears to support the author's hypothesis *"that the training, education and support of emergency medicine doctors in rural and regional Australia is inadequate for the level of services required"*.

CHAPTER 3

METHODOLOGY

3.1. Overview

The author has principally adopted a heuristic framework for this research. Moustakas' definition of heuristic research refers to *'a process of internal search through which one discovers the nature and meaning of experience and develops methods and procedures for further investigation and analysis'* [272]. The concept, evolution, purpose and direction of this research has derived from the author's personal experiences over a 20 year professional career. The vast bulk of the information collected for this study is based on the personal experience and observations of those individuals consulted or surveyed.

There were four components of this study:

1. An extensive review and analysis of the relevant literature
2. A 12 month survey of advertisements for non-specialist positions in emergency medicine in rural and regional Australian hospitals.
3. Postal survey of 230 doctors working in emergency departments of hospitals in RRMA 3 and 4 areas of Australia.
4. Field visits to hospitals and semi-structured interviews with individuals and representatives of organisations with substantial involvement or

interest in the delivery of emergency medicine services outside metropolitan teaching hospitals.

Triangulation has been used to assess the level of agreement (or disagreement) between the various sources of information and thereby enhance the validity and credibility of the information and data collected.

A reflexive approach has been taken by the author by presenting this study as a 'work in progress' to various peer groups with participants invited to question and criticise the methodology used and the conclusions drawn.

3.2. Analytical Framework

A *heuristic* framework and to a lesser extent, a *phenomenological* approach have been used in this research. To a large extent, this research uses the personal experiences of the author, and the information obtained from doctors surveyed and key stakeholders. Drawing out the reasons behind these responses has aided the interpretation of the major issues confronting rural emergency medicine. The phases of this heuristic research have followed those outlined by Moustakas [272] and consist of Initial engagement, Immersion, Incubation, Illumination, Explication, Creative synthesis, and Validation.

The *initial engagement* with emergency medicine occurred in the very earliest part of the author's career. A compulsory rotation to a small hospital in rural Queensland in the 1980s brought a realisation of significant deficiencies in the author's own training, knowledge and skills. Over subsequent years, the author moved in and out of emergency medicine and other disciplines in a variety of rural and urban settings. This observational experience appeared to confirm the earlier impressions that many rural doctors, like the author, experienced a lack of knowledge and skills in emergency medicine.

Following this initial generalist career, the author then worked purely in emergency medicine over the following ten years (the *immersion*), becoming actively involved in administrative aspects of emergency medicine as well as teaching and clinical service delivery. The opportunity to observe and experience practices in other Australian states and New Zealand added further to the author's earlier personal observations and impressions. The genesis of this study therefore, stemmed not only from the author's early emergency medicine experience, but also his subsequent career as a teacher and clinician.

Over this time, there continued to be a 'nagging doubt' that current methods of education, training and service delivery for rural emergency medicine were adequately meeting the needs of most rural and regional communities (the *incubation*). Subsequent engagement with specialist colleagues, professional colleges and teaching organisations reinforced the apparent need to examine in a more disciplined way, the complexities and variables of these issues. This gave rise to the research hypothesis.

From reflecting on personal experiences, observations and engagement with others, a realisation emerged that an opportunity existed to challenge current training programs and concepts of emergency medicine service delivery in rural and regional areas (the *illumination*). The author has then moved on to this study which involves observing, interviewing and questioning others to document their backgrounds, experiences and opinions and so gain a broader understanding of the training and education needs of the workforce.

Interpretation of the literature and analysis of the information obtained has unearthed more variables, subtleties and complexities than originally thought. Exploration of these has given a greater depth of understanding and led to refining of the research questions (the *explication*).

The *synthesis* of the various strands explored in this research leads to the proposal of a new framework and curriculum to enhance training, education and stability of the rural and regional emergency medicine workforce.

Validation has been sought through ongoing consultation with colleagues, presentation of this study to peers at state, national and international [273] meetings as well as continual review of the literature. Verification will also include response to articles already published in the newsletters of the University of Tasmania Department of Rural Health [274] and the Australasian Society for Emergency Medicine [275]. Ultimately, additional

verification will be sought through articles submitted to relevant professional journals.

3.3. The Research Questions

To test the hypothesis, *"that the training, education and support of emergency medicine doctors in rural and regional Australia is inadequate for the level of services required"*, the following Research Questions were explored:

1. To what extent do advertising and recruitment strategies reflect the quality of medical staff required for rural and regional emergency departments?
2. What characteristics define the current emergency medicine workforce in rural and regional Australia and what factors influence the future plans of these doctors?
3. What are the major issues identified by medical workforce stakeholders in recruiting, educating and training – and sustaining – a rural emergency medicine workforce?
4. What relevance do other medical training programs and the delivery of emergency medicine services in other countries have for rural and regional Australia?
5. What areas need to be addressed in developing a new emergency medicine qualification more relevant for doctors practising in rural and regional Australia?

3.4. Ethics Approval

Ethics approval for this research was sought and obtained from the Human Research Ethics Committee (Tasmania) Network. (see Appendix A)

3.5. Methodology Process

3.5.1. Literature review and analysis

Relevant databases were searched using the keywords *'rural emergency medicine', 'rural workforce', 'emergency medicine workforce', 'emergency medicine training', 'emergency medicine education', 'postgraduate medical training', 'rural training'* and *'rural education'*. Generally only references from 1995 onwards were extracted unless important for historical context. Databases examined were:

- PubMed (Medline)
- EBSCOhost
- Blackwell-Synergy
- RURAL
- Cochrane collaboration

Several journals were identified as frequently carrying articles relevant to this study and archived issues dating back to 2000 were obtained and scanned for relevant articles and correspondence. These journals included:

- *Emergency Medicine Australasia*

- *Medical Journal of Australia*
- *Australian Journal of Rural Health*
- *Australian Family Physician*
- *Canadian Journal of Rural Medicine*
- *Canadian Journal of Emergency Medicine*
- *Rural and Remote Health (online) (Australia)*
- *Emergency Medicine Journal (online) (UK)*

Electronic sources were extensively used particularly the Australian and Canadian '*Google Scholar'* and *'Google Alert'* search engines.

Searches were also conducted through relevant government, professional and organisation web sites including:

- Australasian College for Emergency Medicine
- Australasian Society for Emergency Medicine
- Australian Medical Association
- Royal Australasian College of Surgeons
- Australian and New Zealand College of Anaesthetists
- Royal Australasian College of Physicians
- Royal Australian and New Zealand College of Obstetricians and Gynaecologists
- Royal Australian College of General Practitioners
- Australian College of Rural and Remote Medicine
- Australian Institute of Health and Welfare
- Australian Medical Workforce Advisory Committee

- Society of Rural Physicians of Canada
- Canadian Association of Emergency Physicians
- American College of Emergency Physicians
- British Association of Emergency Medicine

Popular press items were obtained from regular perusal of the following media:

- *The Weekend Australian*
- *The Courier-Mail (Brisbane)*
- *The Advocate (North West Tasmania)*
- *Vancouver Sun (Canada)*
- *The Province (Canada)*
- *Prince George Citizen (Canada)*
- *Australian Broadcasting Corporation*

Additional press items were obtained through the *Google Alert* search engine.

References were collected, collated and cited using *Endnote*™ software.

Limitations of this review:

- Due to the large volume of published material, references prior to 1995 were generally not accessed unless relevant to gaining a historical perspective. It is *assumed* that pre-1995 material generally had a reduced relevance to rapidly changing workforce and service delivery issues in the 21st century.

- A limited number of databases were examined. There may have been relevant journal articles not indexed in these databases but as many articles appeared in multiple databases, it is *assumed* that a good representative sample of articles from reputable journals has been obtained.
- 'Bad news' health stories are common in the popular press. Only a small selection has been included to put current workforce issues into context.

3.5.2. Survey of advertisements

A convenience sampling of advertisements appearing in the *Medical Journal of Australia*, *The Weekend Australian* and the *Hospital and Medical Employment Bulletin* were obtained over a 12 month period from March 2004 to February 2005. To be included in the sample, the following criteria were used:

- Hospitals from RRMA 3 – 4 areas
- Position was fulltime emergency medicine or indicating that EM was a significant component of the workload.
- Advertisement indicated position was for other than specialist emergency physician or accredited emergency medicine registrar.

Limitations of this sampling:

- The advertisements surveyed did not include other forms of print and electronic media that carry advertisements for health professional vacancies. As the same vacancies were frequently

duplicated in all three publications surveyed and these publications have a national circulation, it has been *assumed* that a representative sample of all advertisements was obtained.

- The information supplied in advertisements or employer websites was at times very limited. Telephone contact of the listed person for enquiries was often very difficult to achieve and viewed with suspicion when the reason for the enquiry was explained. No covert enquiries were used but may have revealed a clearer picture of employer requirements.

3.5.3. Workforce survey

Convenience sampling was also used to gain insight into the training and education of doctors currently working in rural and regional emergency departments. Details of the Survey Form and Information Sheet are contained in Appendix D.

A pilot study of 11 doctors working in the author's own emergency department was undertaken to refine the survey questionnaire. Participants in the pilot study included both males and females with widely varying qualifications and experience. Overseas trained doctors were also part of the pilot study. Only minor grammatical changes and adjustment of age classifications were required following the pilot study.

Data collection was recorded on *Microsoft Excel™* software.

Participants were selected for the survey in the following manner:

- Any doctor currently working in the emergency department of a rural and regional hospital as designated in 'Field visits' (see Appendix C).
- The Director of the Emergency Department (or Director of Medical Services if no ED Director) of each hospital was sent a package of six survey forms and information sheets with stamped return addressed envelopes.
- The Director was asked to distribute these surveys to any doctors working regular shifts in the emergency department at that time – irrespective of seniority, employment status or level of training. Hospitals were invited to photocopy additional forms if required.
- A reminder letter was sent to each hospital approximately three months after the initial mail out.

Limitations of this methodology:

- It is unknown if the surveys returned are representative of all hospitals contacted as respondents were asked not to identify themselves or their employer.
- It is possible that there were minimal returns from some hospitals where the ED Director or DMS did not pass on the survey forms to the intended participants. This may reflect on the concerns of some administrators in supporting the collection of data that reflected poorly on the institution, or lack of interest by the medical staff in the emergency department.

- Private hospitals are known to be significant employers of non-specialist emergency medicine doctors, however, commercial interests often limit the amount of information obtainable from these organisations. With one exception, all these hospitals are in metropolitan areas. Privately operated hospitals contracted to provide public emergency services were included as was the only 'fully private' hospital in rural Australia with a 24 hour emergency department.
- The definition of 'Outer metropolitan hospitals' is a rather grey area and the RRMA and ARIA classifications reflect the complexities in classifying these areas particularly those with recent large population growth [19] . Some of these have been included (for example, Noralunga SA, Werribee Vic, and Caloundra Qld) as they employ a significant numbers of non-specialist doctors in their emergency departments and share many of the characteristics of rural and regional hospitals in the type and complexity of services provided.
- The numbers of doctors practising in these hospitals is largely unknown due to high numbers of locums, casual staff, short term appointments, rotations from other hospitals, and staffing vacancies at the time of the survey. It has been *assumed* that the 230 surveys returned are a representative sample of the current rural and regional emergency medicine workforce as there appeared to be considerable information redundancy in the data collected.

- The number of surveys returned indicated a possible response rate of 68%. Hospitals were asked to photocopy additional survey forms if required. It is possible that more than 340 survey forms were distributed with a potential lower overall response rate.
- Non-responders and non-participants may have had an entirely different set of characteristics to those who took time to reply. Bias may have arisen with omission of doctors reluctant to speak out on deficiencies of their position, or those who regarded the issues as too trivial to warrant responding.

3.5.4. Field visits and semi-structured interviews

Field visits were undertaken to 19 selected Australian and Canadian hospitals during 2004-2006. This was convenience sampling determined by the author's visits for other educational reasons (ELS instructor) or geographical convenience during the sabbatical attachment and family holidays. During these visits, a variety of activities were undertaken which generally included:

- An informal inspection of the emergency department
- Meeting with relevant emergency department personnel
- Semi-structured interviews with the Director of Medical Services or other relevant senior personnel

Hospitals included met the following criteria:

- Located in RRMA 3 – 4 areas of Australia
- Numbers of inpatient beds between 50 and 200

- Services included a 24 hour medically staffed (on-site or on-call) emergency department.
- Emergency department occasions of service between 10,000 and 30,000 per annum
- Inpatient services included basic speciality services such as general surgery and internal medicine.

Hospitals were excluded for the following reasons:

- Small District Hospitals without inpatient speciality services and only VMO GPs were excluded as the emergency medicine component of an individual VMO's work load is relatively small.
- Metropolitan Teaching Hospitals were also excluded as the bulk of their emergency medicine services are provided by, or directly supervised by, specialist emergency physicians and registrars in training for specialist qualifications.
- Major Regional or Rural Base hospitals serving populations of greater than 100,000 and also accredited for specialist training by ACEM were excluded as they share most of the characteristics of Metropolitan Teaching Hospitals (for example, Townsville, Wollongong, Geelong, Launceston).

Semi-structured interviews were conducted with individuals and representatives of organisations identified by the author as key persons, stake holders, or participants in the education, training and service delivery of emergency medicine services in Australia, New Zealand and Canada.

Meetings were arranged either face-to-face or via telephone. The identity of these individuals has not been revealed (see Appendix B). The information provided by these individuals was not necessarily the official view of their employer or organisation but, rather, the individual's own understanding and interpretation of the issues surrounding emergency medicine training and education.

The persons interviewed were specifically asked to comment on:

- Current emergency medicine workforce shortages and projections for the future
- Successful and unsuccessful strategies in recruiting staff
- Educational standards and level of training of staff recruited
- Effectiveness of currently available training programs
- Obstacles and solutions to improving rural emergency medicine services

The content of interviews was examined to identify common themes and sub-themes in the responses. As the number of interviews was relatively small, the results were determined by direct examination rather than using computer software for analysis.

Limitations of this methodology:

- Some individuals and organisations were reluctant to be interviewed or provide information, particularly those representing

the private sector where commercial interests and market share were important factors.

- Some individuals were guarded in their comments and required an assurance of anonymity so as not to compromise their employment or status within an organisation.
- Long standing professional jealousy between some organisations may have influenced some responses.
- Organisations representing nursing and allied health professions were not included but may hold different views to the medical profession.
- The author's own experiences may have influenced those individuals and organisations approached and the interpretation of their opinions during the undertaking of this research. Some of the participants were colleagues and associates of the author and this may also have influenced responses. It has been *assumed* that the individuals and organisations consulted adequately represent the broad range of views on this subject.

3.6 Triangulation

Similar and closely related information was able to be obtained through these different processes. For example, journal articles, press reports, advertisements, ED doctors surveyed, and professional organisations – all provided information on difficulties in recruitment and retention of ED doctors

in rural areas. This provided a valuable opportunity to triangulate the information obtained and assess the consistency (or inconsistency) of the information. Similar comparisons were able to be made by triangulating information obtained during a clinical attachment in rural Canada with data published and provided by professional bodies in that country.

The last two research questions arose as part of the triangulation process. Research Question 4 *(The relevance of other medical training programs and delivery of emergency medicine services in other countries)* was prompted by the experience of other Australian and international programs that have already identified the need to adopt specific strategies relevant to rural practice.

Research Question 5 *(Areas to be addressed in developing a new emergency medicine qualification)* was deemed to be important as it helps 'close the loop' in addressing one of the significant weaknesses of the current rural emergency medicine workforce. In particular, Research Question 5 suggests a mechanism to examine and re-examine the outcomes of establishing a new curriculum in rural emergency medicine. Information to address Research Questions 4 and 5 was largely obtained through published material identified in the Literature Review as well as the author's observations and experiences during the course of this study.

To a large extent, the multiple opportunities to triangulate the information reduced the impact of the identified *limitations* and improved the *reliability* of the methodology process.

3.7 Reflexivity

A generally reflective approach has been taken with this research. Presentations to clinical and academic colleagues have aided in the further refining and development of the research questions and methodology. These presentations have taken place at local, national and international levels (See Appendix I). This reflective approach has also opened up new lines of information not obtainable from the published literature, and established new contacts for other areas of research stimulated by this study.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter examines each of the research questions in turn and the extent to which the information and data obtained answers the questions. Tables of data from which the Figure illustrations are derived are contained in Appendix J.

4.1 Research Question 1

To what extent do advertising and recruitment strategies reflect the quality of medical staff required for rural and regional emergency departments?

4.1.1 Introduction

Advertising for vacant positions utilises a number of strategies. While print media was used as the source for this study, electronic media is increasingly used because of the ability to provide much more detailed information at minimal cost. Whether this reaches a greater target audience is debatable. In recent times, recruitment agencies have played a major role, particularly for more senior positions where active 'head hunting' is regarded as an acceptable strategy. Such recruiting also incurs significant costs through the agency fees. Other observed strategies included: direct mail-outs to college members; insertion of flyers in professional journals; and health authorities and recruiters joining the 'trade displays' at medical conferences.

Nevertheless, the printed media remains a prominent source of advertising for professional positions and is often combined with academic or 'human interest' stories relevant to the profession. Many positions were advertised in both electronic and print media and were often run as sequential advertisements over several issues.

Over a 12 month period, a total of 51 positions from 24 hospitals were identified as meeting the criteria for inclusion (See Methodology p. 98). All states of Australia and the Northern Territory were represented. There were no applicable advertisements from the Australian Capital Territory. Four hospitals indicated that more than the number of advertised positions would likely be available.

4.1.2 Prior general experience

Most advertisements made no reference to any requirement for a minimum degree of postgraduate experience to fill a position (Figure 4.1). Logically, the more years of experience, the more likely an applicant would be suitable for a position. While 29% (15/51) of the advertised positions indicated applicants must be in at least their 3rd Postgraduate Year (PGY3), a further 16% (8/51) indicated that 2nd Postgraduate Year (PGY2) doctors were also eligible for consideration. The classification of a PGY2 doctor means experience in any discipline would be limited, necessitating considerable on-the-job training and support. Many smaller hospitals would have difficulty providing this training and support in the climate of shortage of experienced medical staff. From enquiries made, it seemed that many employers were keen to 'cast a wide net' in their recruiting efforts knowing from past experience that advertising specifying too stringent requirements attracted few suitable applicants.

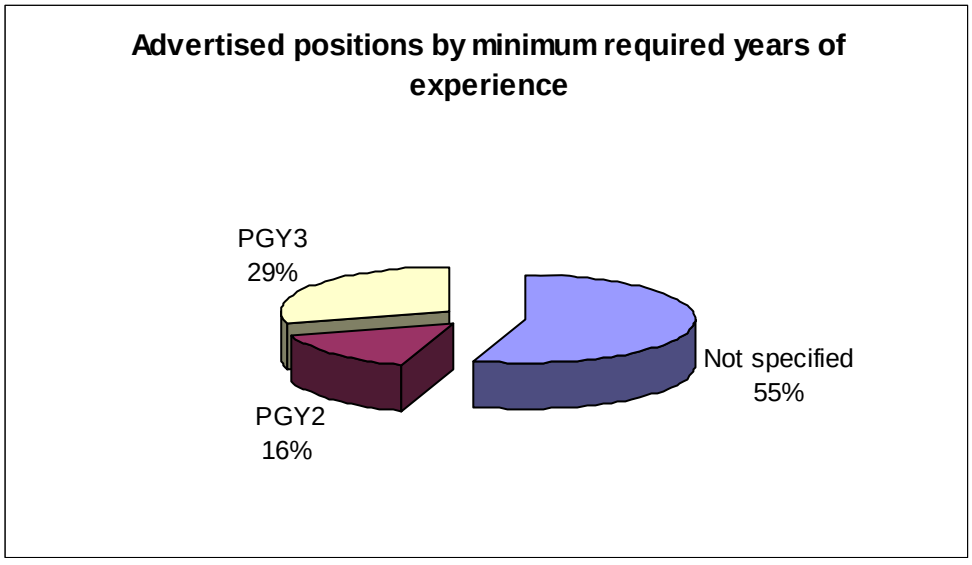


Figure 4.1 Advertised positions by required years of experience (n = 51)

4.1.3 Registration requirements

Similar to required prior experience, most employers were deliberately vague on registration eligibility for potential applicants. Ineligibility for any form of registration would obviously preclude employment. Most employers were happy to consider any applicant and provide the necessary sponsorship for conditional or limited registration for an overseas trained doctor if no local graduate applied. Whether or not the employer could genuinely meet the supervision requirements of a conditionally registered doctor seemed to be of little concern. Anecdotal observation suggests that even nominal supervision by a Director of Medical Services or other senior doctor off site could satisfy the registration authorities. Only 10% (5/51) of vacant positions specified full registration as a requirement, this generally being for more senior positions within the emergency department.

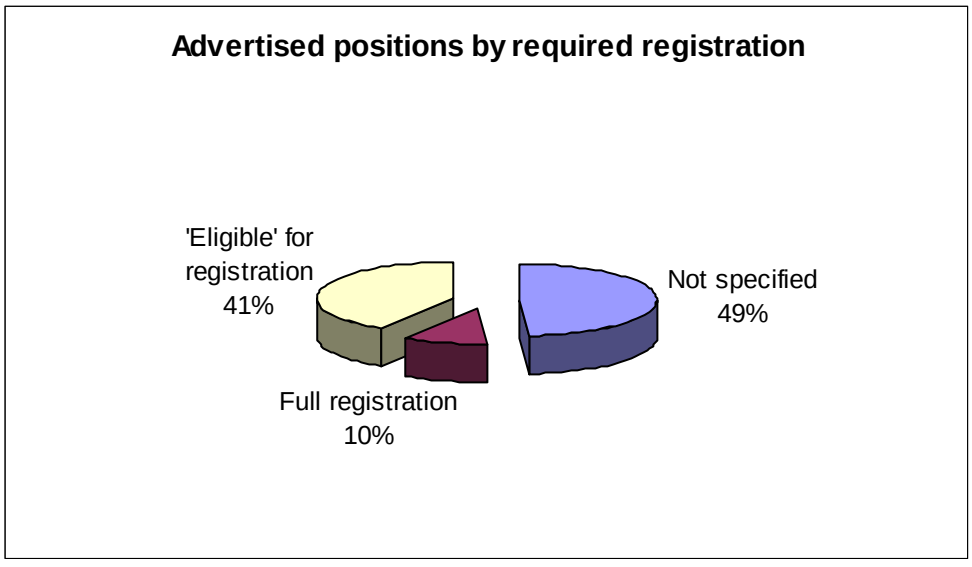


Figure 4.2 Advertised positions by required registration (n = 51)

4.1.4 Required prior emergency medicine experience

Once again, employers were largely non-committal as to the need for prior experience in emergency medicine. It is assumed that all employers would regard prior experience as desirable although few advertisements actually stated this. It is interesting to note that for only 35% (18/51) of positions was prior experience specified as an essential requirement. Most of these did not specify just what level of experience was required.

On the one hand, it could be argued that relevant experience can only be acquired once a position has been obtained in an emergency department – thus allowing progression to higher levels of responsibility. On the other hand, the more cautious approach would maintain that relevant experience is better gained in the more supportive environment of a larger institution before moving into the relatively unsupervised practice and autonomy of smaller emergency departments.

4.1.5 Enquiry for further information on advertised positions

One particularly interesting finding was that, in many cases, the contact person for further information was not the head of the emergency department. It is acknowledged that, in some cases, the Director of Medical Services (DMS) may have been the most relevant person in institutions too small to have an ED Director or where the DMS maintained an active role in providing clinical services. In 29% (15/51) of positions however, the contact person was a non-clinical hospital representative unlikely to have the detailed knowledge a potential medical applicant would require when pursuing a new position. These representatives included Chief Executive Officers, Human Resources personnel, clerical staff and, in one hospital, the Director of Nursing.

Of perhaps greater significance, in many cases the author experienced much difficulty in contacting the nominated enquiry person. Frequently the listed contact person was unavailable or calls were not returned. In one hospital, the administrative contact person no longer worked at the hospital and other personnel were unsure to who enquiries should be re-directed.

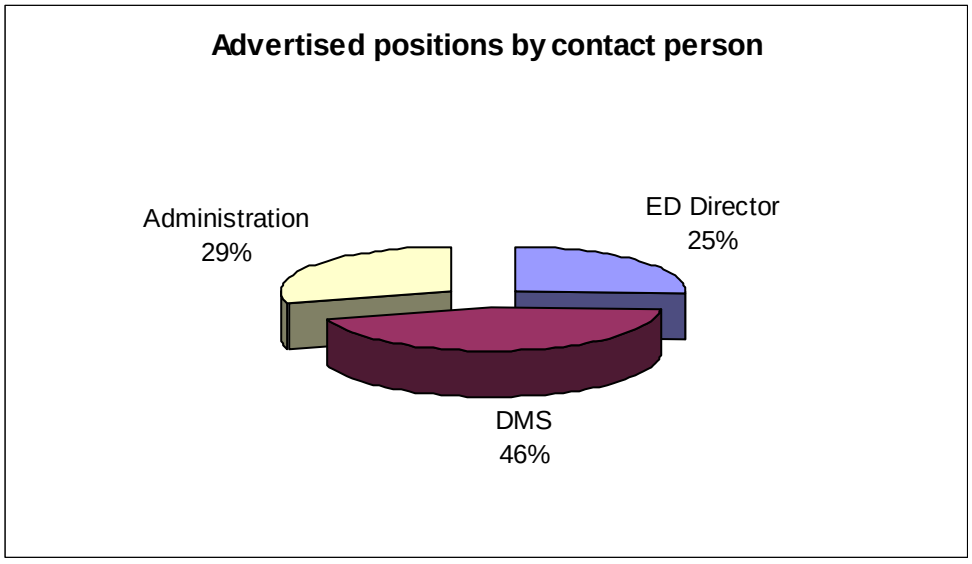


Figure 4.3 Advertised positions by contact/enquiry person (n = 51)

4.1.6 Summary

These findings support the observation that there is an air of desperation amongst employers in competing for applicants from a diminishing pool of suitably trained emergency department staff. During the course of this study, the overall shortage of specialist level staff has generated something of a 'bidding war' between states to fill positions in some of the less popular hospitals.

The lack of emphasis on quality of staff reflects the practical difficulty in filling gaps on ED rosters. It is a paradox that greater effort is not being made to ensure potential applicants are able to easily gain access to the right person for more information. Even the recent trend to increased use of recruiting agencies has not diminished the amount of advertising in the print media – suggesting that no particular strategy is outstandingly successful.

Anecdotal reports of hospitals that are successful recruiters indicate that establishing and maintaining a good reputation by word-of-mouth reaps greater benefits. In well-staffed hospitals, many positions are filled when colleagues are approached and encouraged by their peers to join a new team. This is seen as a more honest assessment of a hospital than the 'spin' used in advertising campaigns.

The findings from this survey of advertisements are in keeping with reports from the literature of ongoing difficulties recruiting health professionals to all rural and regional areas. This is also supported by later information provided

by stakeholders during interviews and discussions. Negative aspects reported by survey respondents on lack of suitably trained staff, lack of education opportunities and variable administrative support, also support these findings.

4.2 Research Question 2

What characteristics define the current emergency medicine workforce in rural and regional Australia and what factors influence their plans for the future?

4.2.1 Introduction

340 surveys were distributed to 57 rural and regional hospital emergency departments (See Appendix C for details of hospitals). 230 surveys were returned giving a response rate of 68%.

This response rate was more than expected. Busy medical practitioners are notorious for failing to respond to mailed out requests for information, even when there is financial inducement to do so – a tactic commonly used by pharmaceutical companies when seeking information on prescribing habits. It may be that many in this workforce have had little opportunity to make comment on issues of concern and saw this survey as an opportunity to voice their opinions.

However, 230 practitioners may only be the 'tip of the iceberg' of those practising emergency medicine in rural and regional hospitals. As mentioned earlier, AMWAC reported that there were 656 Career Medical Officers in public hospitals [64] and ASCMO estimated half their membership worked in emergency medicine. When OTDs, part time GPs, locums and junior medical staff are included, the true numbers may be many more. For the purposes of

this study, it has been *assumed* that the number of doctors surveyed represents a broad cross-section of the rural and regional EM workforce and provides a good 'snapshot' of the current issues.

4.2.2 Gender of respondents

The surveyed workforce was predominantly male with only 25% (57/230) of respondents female. This number was lower than the overall medical practitioner workforce with approximately 32% females, the GP workforce (35% females), and the Career Medical Officer workforce (38% females); but more comparable with the specialist emergency medicine workforce (22% females) and the rural and remote GP workforce (28% females) [264].

On the one hand, this would suggest that emergency medicine is less 'family friendly' than other areas of medical practice. On the other hand, the increasing numbers of female specialist trainees indicates that there are, in fact, attractive aspects of EM such as the ability to train and work part time. Such features may be less relevant to the rural and regional workforce where additional responsibilities and staff shortages have a profound impact. (See also 4.2.11 and 4.2.12). Over time, the increasing number of female undergraduates will no doubt have a flow-on effect of raising the proportion of females in all medical disciplines.

4.2.3 Age of respondents

Respondents were only asked to place their age within a 10 year range therefore it is not possible to quote a precise breakdown of the workforce or an 'average' age. It is worth noting that the bulk of the workforce was in the 30-50 age group (63% or 145/230) (Figure 4.4). Females were younger overall than males with 67% (38/57) under the age of 40 but only 45% (77/173) of males fell into this age group. This most likely reflected the relatively recent recognition of emergency medicine as a separate discipline, the overall increasing numbers of women in the medical workforce as well as the popularity of emergency medicine with the associated opportunity for part time training and practice.

These figures appear to be broadly comparable with those of the Medical Labour Force Survey which reported an overall older male workforce but an increasing proportion of females particularly in the under 45 age group [264]. AMWAC data on the specialist emergency medicine workforce is also broadly comparable showing the female specialist workforce younger overall than their male colleagues [26]. The overall total specialist workforce is older than that found in this survey – presumably reflecting the substantial length of training to obtain qualifications in the long-established specialist disciplines.

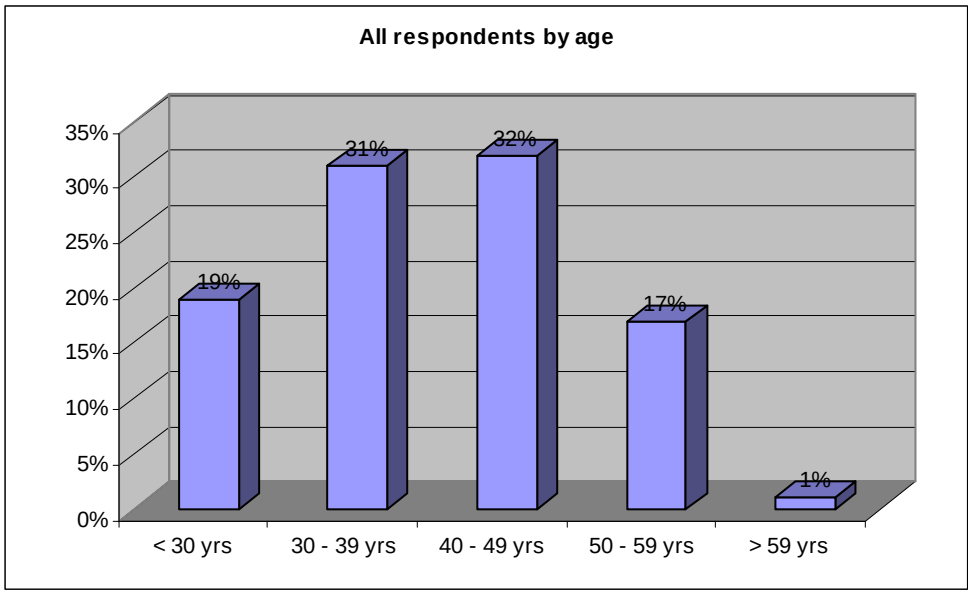


Figure 4.4 Age of all respondents (n = 230)

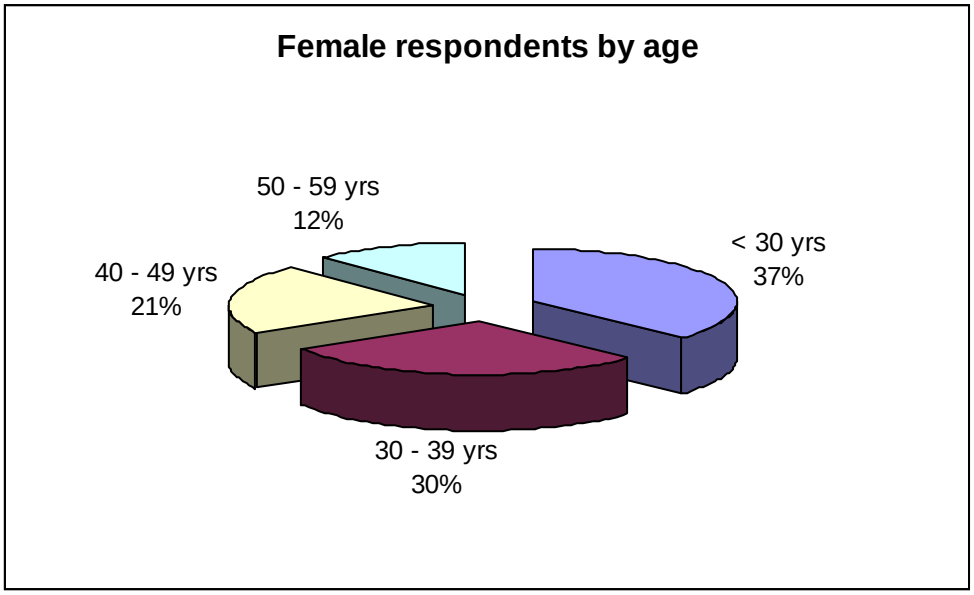


Figure 4.5 Female respondents by age (n = 57)

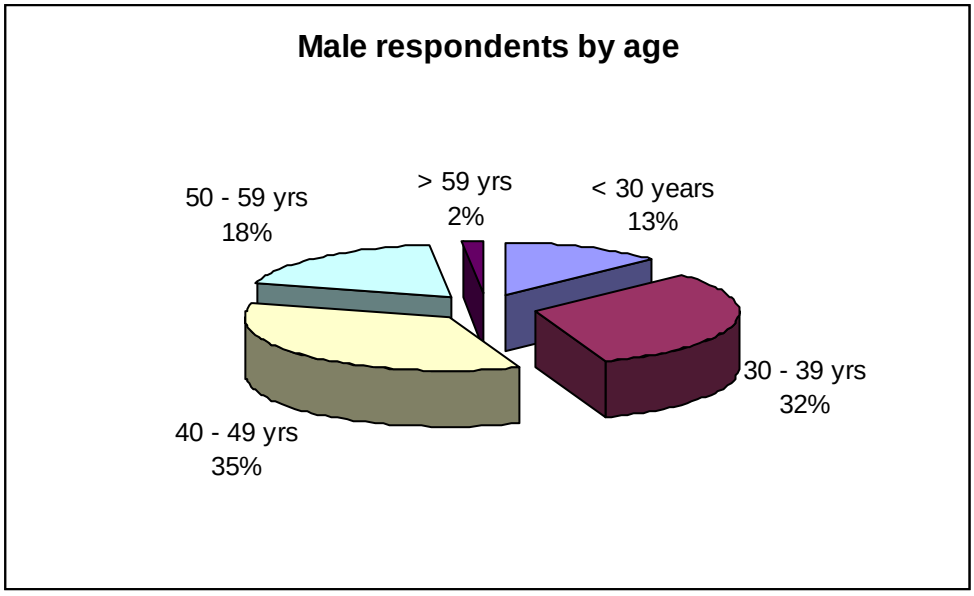


Figure 4.6 Male respondents by age (n = 73)

4.2.4 Eligibility for registration

Just under half (45% or 102/230) of respondents received their basic training outside Australia or New Zealand (Figure 4.7). (New Zealand is now the only country whose medical graduates are automatically eligible for full registration in Australia). These figures were broadly comparable with those quoted by the Australian Rural and Remote Workforce Agencies Group (ARRWAG) but do suggest a greater proportion of the emergency medicine workforce is overseas trained than the overall medical workforce. Victorian and Queensland figures quoted by ARRWAG show the proportion of OTDs rises with increasing rurality. ARRWAG reported about 20% of the medical workforce in regional centres was overseas trained, rising to 43% in remote locations [263]. All workforce projections anticipate an ongoing reliance on OTDs in hard-to-recruit areas with concerns expressed about further shortages as Australia competes in the global market place for health professionals.

Encouragingly, in this survey, most OTDs had completed the Australian Medical Council examinations but a significant number (39/102) had not, and were practising with some form of limited or conditional registration in positions where no suitable local graduate was available. Anecdotal evidence and media reports suggest that the skills and knowledge of some OTDs, as well as the level of supervision and support for this group, are not always of an acceptable level for the vacant position. This of course reinforces the observation that appointing inadequately prepared doctors to positions of responsibility is inherently unsafe.

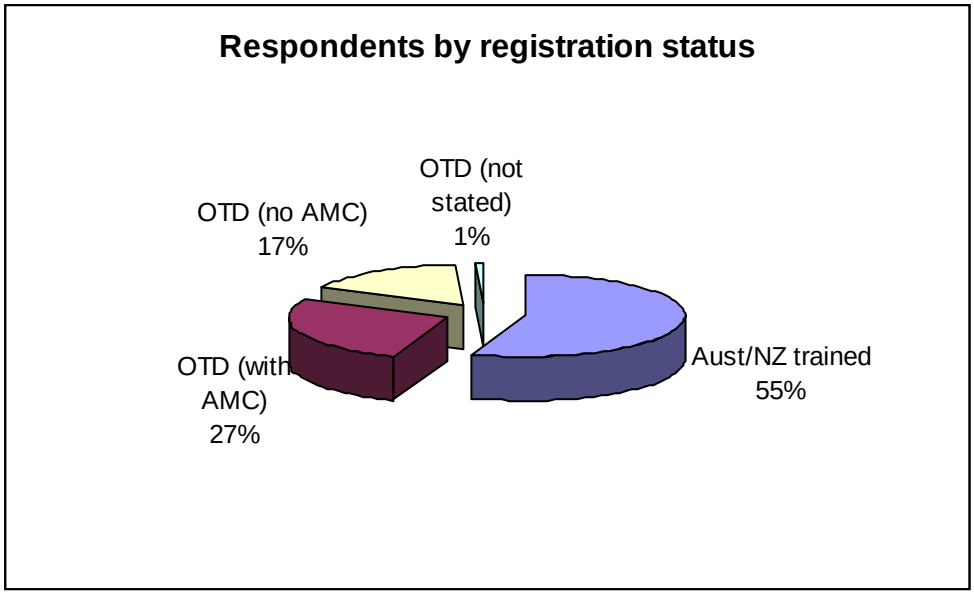


Figure 4.7 Respondents by Registration status (n = 230)

4.2.5 Postgraduate qualifications

Just over one third of respondents (83/230 or 35%) held a total of 105 'relevant' fellowship diplomas for the position occupied (Figure 4.8). FRACGP was the most commonly held fellowship with only 13 FACEMs (representing less than 6%) responding to the survey (Figure 4.9). There were 21 respondents who held two or more fellowships. It is, of course, debatable as to the degree of relevance of any particular fellowship. FRACGP and FACRRM curricula contain much less emergency medicine than the FACEM curriculum – reflecting the obvious need for these 'generalist' fellowships to encompass the entire spectrum of human illness and injury compared with the specialist level of knowledge for the FACEM. For the purpose of this study, the Fellowship of the American College of Emergency Physicians (FACEP) and the equivalent Canadian Fellowship of the Royal College of Physicians (FRCP) were regarded as 'FACEM equivalent' although there is no automatic recognition of these qualifications.

A slightly greater percentage of respondents (38% or 88/230) were non-fellowship holders but had one or more relevant certificates (Figures 4.8 and 4.10). These certificates are generally achieved by satisfactory completion of weekend or similar short courses. Many respondents held multiple certificates but this should not be confused with the much more rigorous requirements to be awarded a fellowship. Most fellowship holders also held one or more of these certificates. Once again, the relevance of any particular certificate is open to debate. 'Relevance' was deemed to be certificates in trauma management, emergency medical conditions, advanced cardiac life support,

advanced paediatric life support, anaesthetics and emergency ultrasound. Certificates in other disciplines from other countries were not considered relevant. Also excluded were specific certificates in emergency obstetrics and neonatal resuscitation as this area of practice is generally not a responsibility of emergency department staff.

Some state registration authorities have used successful passing of such short courses as a required 'standard' for ongoing registration of OTDs. It was never intended that this be the purpose of such courses and, as a result, the organisers of some courses have removed any official pass/fail assessment and simply issued a certificate of attendance on the course.

The certificate in Early Management of Severe Trauma (EMST) overseen by the Royal Australasian College of Surgeons was by far the most common certificate held (Figure 4.10). There is a widely expressed view amongst emergency physicians that such a course should principally be taught by emergency physicians, not just surgeons. The EMST course has its origins in the American ATLS course and reflects the far greater proportion of penetrating trauma in that society – and the necessary involvement of specifically trained trauma surgeons. In the Australasian setting, penetrating trauma is far less common. The relatively higher proportion of blunt trauma rarely requires urgent surgical intervention. The evolution over the last 10 years of the Emergency Life Support (ELS) course arose out of a perceived need to develop a 'home grown' course reflecting Australasian patterns of commonly encountered non-trauma emergencies.

Of concern was the 27% (61/230) of respondents who held neither a relevant fellowship nor any relevant certificate in emergency medicine (Figure 4.8). While it could be argued that knowledge and skills can be better acquired by on-the-job training, the successful completion of such certificates demonstrates a commitment to maintaining and advancing knowledge – particularly in infrequently encountered situations. Undoubtedly, a number of these respondents were doctors recently arrived in Australia or relatively newly qualified. It would appear, however, that a significant proportion of emergency medicine doctors are unable (or unwilling) to undertake additional training.

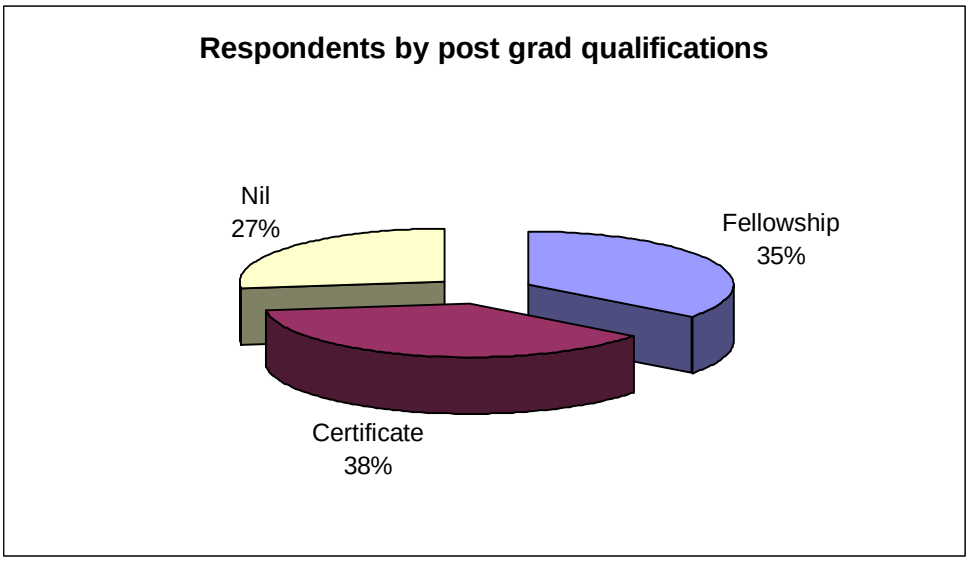


Figure 4.8 Respondents by postgraduate qualifications (n = 230)

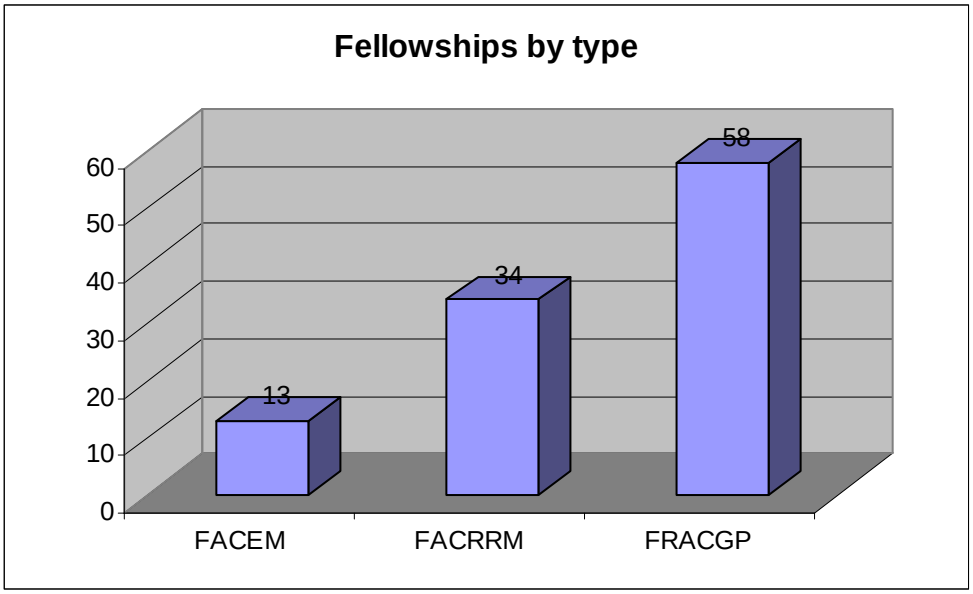


Figure 4.9 Respondents by Fellowship qualifications

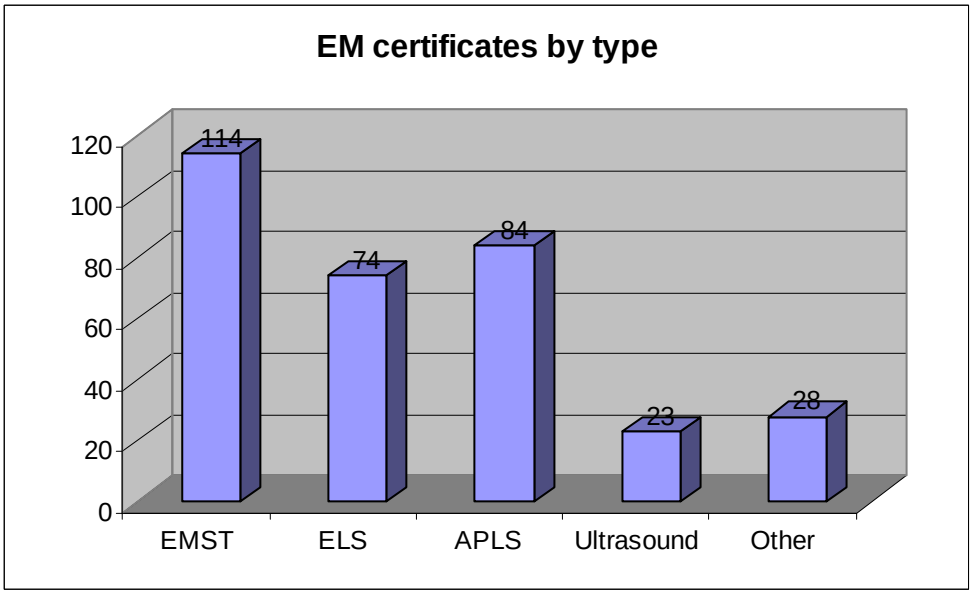


Figure 4.10 Relevant EM certificates by type

4.2.6 Current position

A number of respondents did not answer this question, perhaps indicating a degree of confusion on the plethora of different position titles in different states. While the largest group of respondents (35% or 77/219) described themselves as ‘Career Medical Officers’, doctors with similar experience and qualifications may have titles such as ‘Senior Medical Officer’, ‘Principal House Officer’, ‘Salaried Medical Officer’ or ‘Medical Officer Special Scale’. Similarly, there is a blurring of roles for ‘Resident Medical Officer’ (RMO), ‘Hospital Medical Officer’ (HMO) and ‘non-accredited registrar’.

‘Visiting Medical Officer’ (VMO) may include both specialist and general practitioners. It is also interesting to note that a number of respondents who described themselves as ‘Staff Specialists’ did not have specialist qualifications but were recognised (and paid) at this level by their employing authority out of recognition for their qualifications, experience and responsibilities – and the desire by the employer to retain such skilled staff.

These responses add to the earlier observation that ‘non-specialist practitioner’ encompasses a wide variety of qualifications, experience and skill levels. This also reinforces the observed difficulty in clearly identifying the number of practitioners in the emergency medicine workforce.

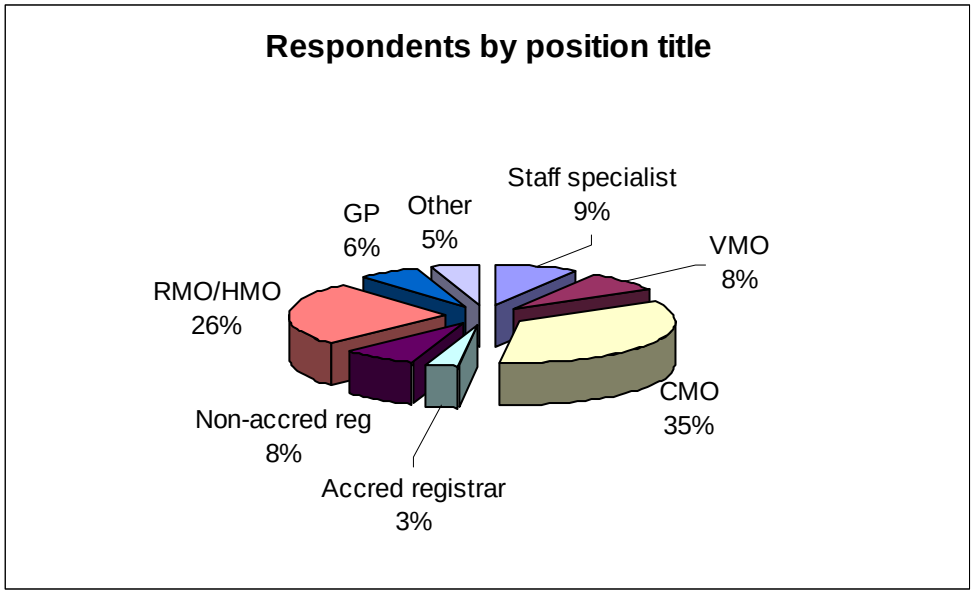


Figure 4.11 Respondents by current position title (n = 219)

4.2.7 Employment status

It was clear from the responses that there was some confusion over what constituted ‘part-time’, ‘casual’ and ‘call-in’ – adding further weight to the observation that it is very difficult to ascertain numbers of doctors and their specific roles in working in rural and regional emergency medicine. Only about one third (78/227) of respondents held a full time position in emergency medicine (Figure 4.12). Surprisingly, proportionally more females (40% or 24/59) than males (31% or 54/168) held full time positions. While these figures were not broken down by size of hospital, it is reasonable to assume that the smaller the hospital, the more likely medical staff have other administrative, clinical or private practice commitments (see also Figure 4.19).

This large variability in the workforce not only makes it hard to collect data on the characteristics of the workforce, but also hard to collect data on adverse events and clinical outcomes. At a practical level, delivery of education programs may exclude many of those who work part time or irregular shift patterns.

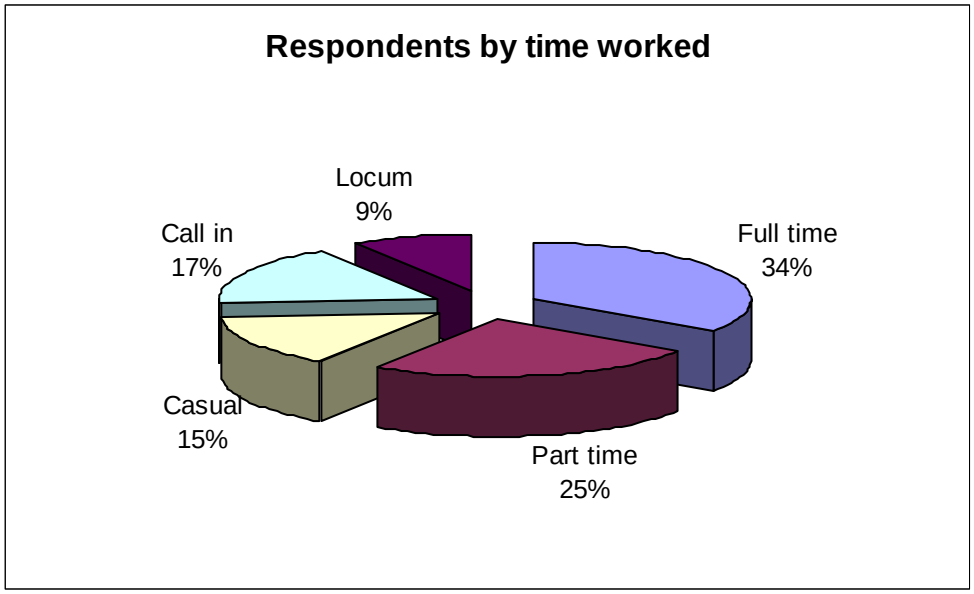


Figure 4.12 Respondents by time worked (n = 227)

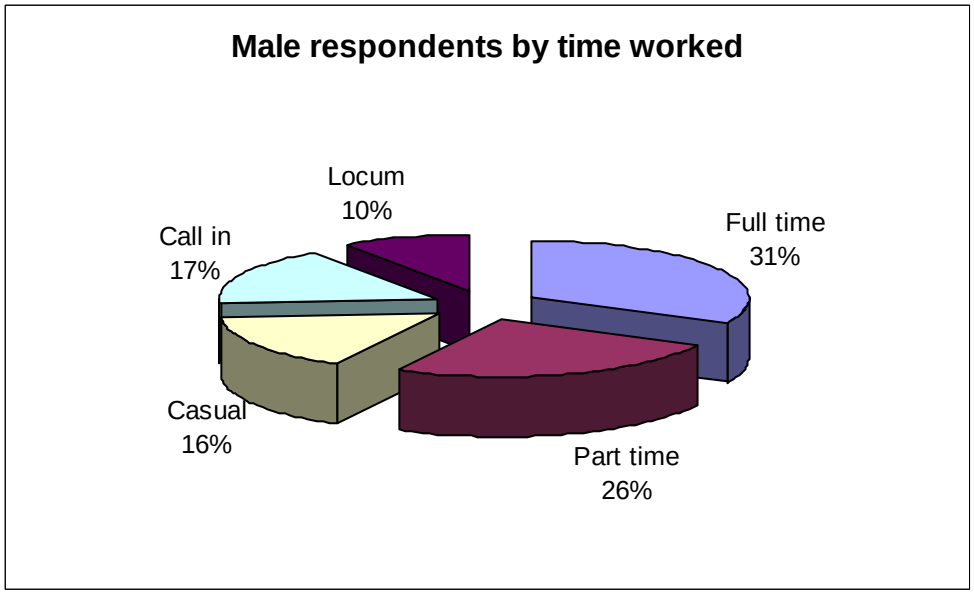


Figure 4.13 Male respondents by time worked (n = 168)

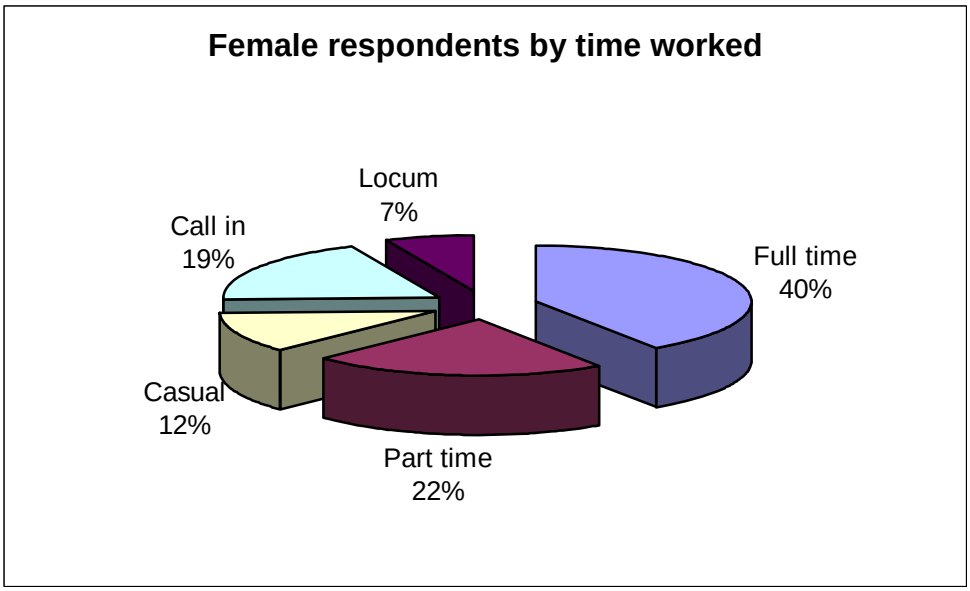


Figure 4.14 Female respondents by time worked (n = 59)

4.2.8 Continuing education and professional development

While it would be reasonable to assume every doctor receives some ongoing education, the structure and audit of formal Continuing Medical Education (CME) and Maintenance of Professional Standards (MOPS) programs are designed to demonstrate a commitment to maintaining relevant skills and knowledge. Most professional colleges now require their fellows to participate in such programs to maintain certification. A number of colleges also permit non-fellows to enrol in their programs if they are supervised by a fellow of that college [131]. Slightly less than half the respondents (112/230) participated in formal CME/MOPS programs. Almost all of these were the more experienced doctors. This included 81 fellowship holders and seven accredited registrars.

However, 51% (118/230) did *not* participate in any formal program and there was a higher proportion of non-participants among OTDs (60% or 61/102). Very few doctors with less than five years EM experience were participating in any program. It is well known that many rural doctors face considerable barriers in accessing relevant CME activities [112, 113] although a significant amount of CME activities can now be completed via internet based programs. To what extent the non-participants utilised self directed learning or 'in-house' education programs was not examined. For example, OTDs may have a greater focus on preparation for AMC examinations than acquiring EM knowledge and skills.

Enrolment with RACGP programs was most common (76 respondents) with smaller numbers for ACEM and ACRRM programs. 19 respondents were enrolled in two or more programs. 'Other' programs included those for anaesthesia and obstetrics as well as US and Canadian emergency medicine programs.

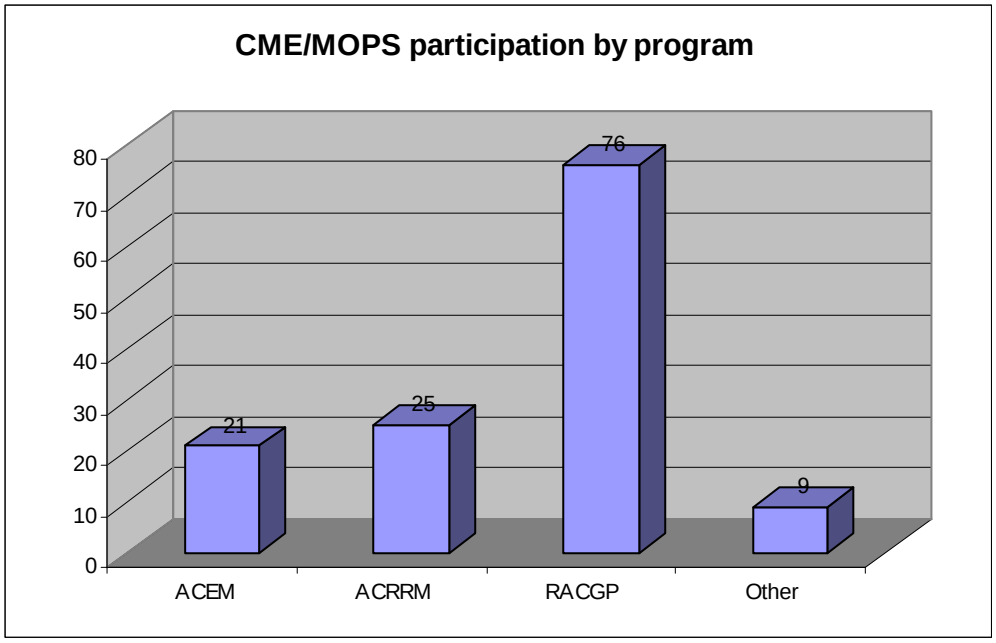


Figure 4.15 CME/MOPS participation by program

4.2.9 Years of emergency medicine experience

In this survey, 11% (24/221) of the respondents had less than one year's experience in emergency medicine – a surprisingly small figure considering the number of junior medical staff who rotate through hospital terms (Figure 4.16). Perhaps this reflected the fact that few of the surveyed hospitals were accredited for Intern (Postgraduate Year 1) training. Conversely, there was clearly a great deal of practical experience in the workforce with 25% of respondents having 5-10 years experience and a slightly greater percentage with over 10 years experience. This suggests that, despite a high level of non-participation in formal CME/MOPS programs, many doctors have still acquired a great deal of knowledge and skills 'on the job'. The quality of this knowledge and skills is not so easy to determine.

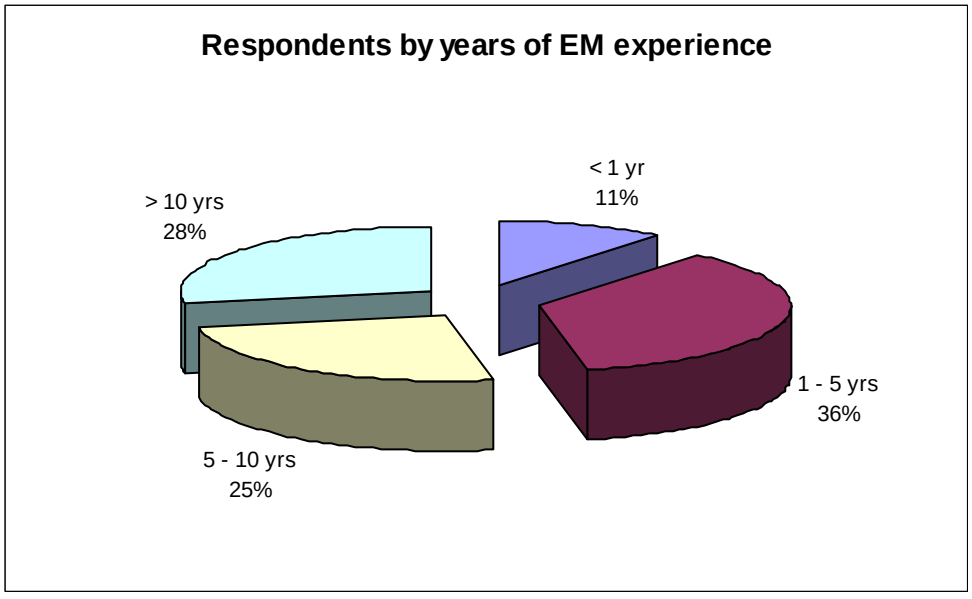


Figure 4.16 Respondents by years of emergency medicine experience (n = 221)

4.2.10 Previous experience in a rural or regional setting

24% (53/220) of all those surveyed had no prior rural or regional work experience before coming to their existing job (Figure 4.17). The survey did not explore *why* this was the case but perhaps this simply reflected the reality observed by Tolhurst that up to two thirds of the rural workforce come from an urban background [246]. The proportion was slightly higher for OTDs (29% or 29/102). Given the well documented adjustment difficulties of some OTDs in taking up positions in Australia, this raises further issues of suitability of OTDs for the relatively unsupervised rural environment. Even when OTDs have had extensive rural experience in their own country, this may have little relevance to the Australian rural setting.

Of great interest was the finding that 40% (89/220) of respondents had moved to their current position from another rural emergency medicine position. Some of this movement undoubtedly was a result of career advancement although the high numbers suggest a significant degree of instability in the rural workforce. It would appear that many in the ED workforce are on the move seeking a greater degree of personal and professional satisfaction. This is consistent with further responses illustrated in Figures 4.21 and 4.22.

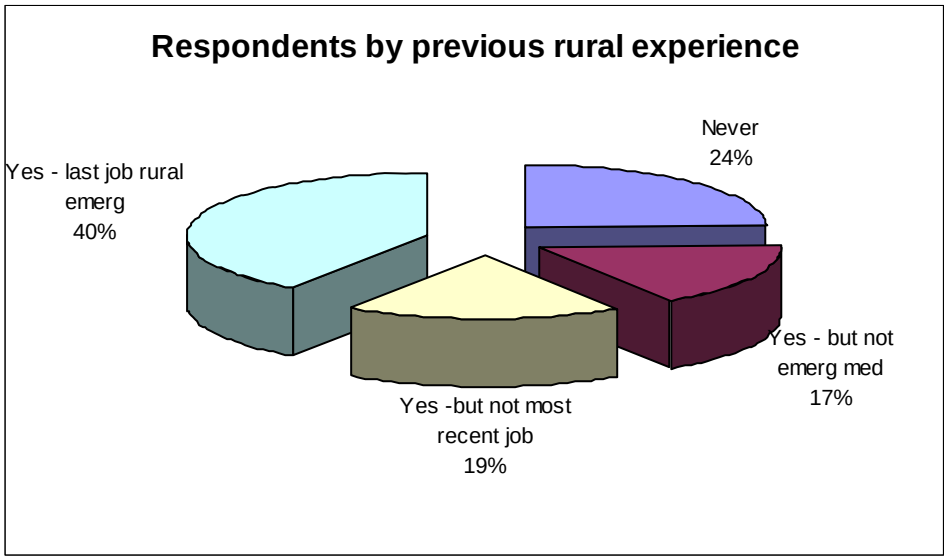


Figure 4.17 Respondents by previous rural/regional experience (n = 220)

4.2.11 ‘Hands on’ time in emergency medicine

The finding that only 35% (79/227) of respondents were providing clinical ED services 100% of time was not unexpected, given that many in the workforce have additional responsibilities outside emergency medicine such as teaching, supervision of junior staff or other clinical responsibilities. It was also evident that, the more senior the staff, the greater the likelihood that they were involved in other areas such as staff recruitment and administration.

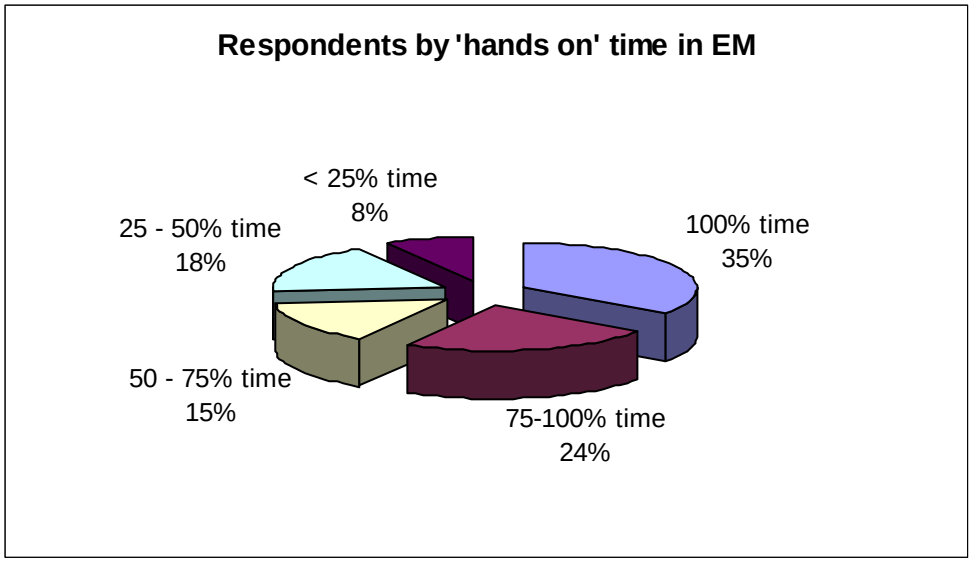


Figure 4.18 Respondents by proportion of ‘hands on’ time in emergency medicine (n = 227)

4.2.12 Additional responsibilities

As noted in Figures 4.12 and 4.18, staff with full time ED appointments and those with a 100% commitment to providing clinical ED services were in the minority (about one third in each case). Many respondents listed multiple additional responsibilities while only 12% (27/230) indicated no additional responsibilities (Figure 4.19). Some responsibilities such as on-call and shift work would normally be regarded as an inevitable consequence of having an emergency medicine appointment. It is therefore surprising only 62% (143/230) listed 'shift work' and 47% (109/230) 'on-call' as part of their responsibilities. Working unsociable hours and the impact this has on family and leisure activities can be a major drawback for any profession. Why so many of the respondents appear to have avoided doing shift work or on-call, raises the issue of what impact this is having on the remainder of the workforce who must carry this clinical load. For most emergency departments, the volume and acuity of the workload after-hours is often greater than the 'normal business' hours.

Other significant findings were that just over half (53%) of respondents have a responsibility for supervising more junior staff, 36% were involved in formal undergraduate teaching and 21% in postgraduate teaching. Other authors have raised the potential difficulty of balancing a commitment to teaching the next generation, against the demands to supply clinical services in areas of staff shortages [270]. It is also worth noting the frequency with which ED doctors carried responsibilities in other areas of complex medical practice such as retrievals, anaesthetics, intensive care and coronary care. A high proportion

(31%) also carried administrative responsibilities mainly in the areas of staff recruiting, organisation and rostering. A surprisingly small number (11%) had a private practice component to their job.

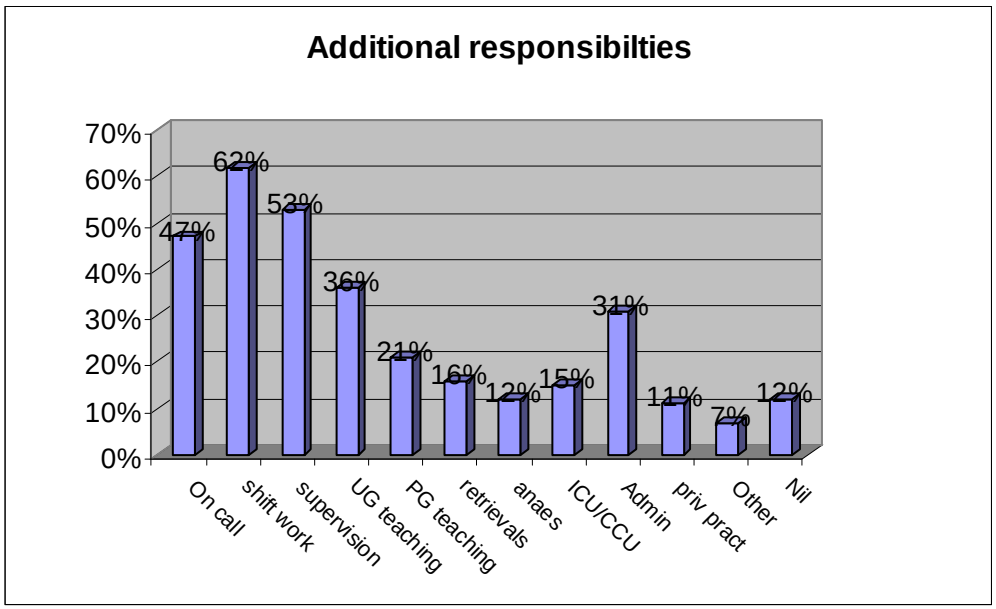


Figure 4.19 Percentage of respondents by additional responsibilities

4.2.13 Positive aspects of current position

Many respondents listed several positive aspects of their current position (Figure 4.20). Two respondents stated there were *no* positive aspects of their current position! Overwhelmingly, the casemix that reflects the huge variety of clinical material seen in the ED was the most frequently rated positive feature (74% or 171/230). This may well be linked to the 30% who regarded the 'adrenaline buzz' of urgent interventions in the ED as an important feature. The second most positive feature was the camaraderie of the medical and nursing colleagues in the ED (58%) – a feature perhaps more likely to be found in the close-knit environment of smaller emergency departments.

Other issues such as 'Pay and conditions', 'Work environment' and 'Administrative support' were variably rated as positive or negative features. 'Pay and conditions' and 'Work environment' were more often rated as positive than negative features. These issues appeared to reflect more the individual hospital rather than the overall profession (See also Figure 4.21). OTDs were more likely than local graduates to rate 'Administration support' as a positive feature. This perhaps related more to a gratitude for obtaining any job that would markedly improve the chances of passing AMC exams and establishing a career path.

Compatibility with family life also featured as both a positive and negative factor. On the one hand, many doctors (33% or 76/230) found it attractive to be able to work a predictable shift with a high probability of leaving the 'office' on time. On the other hand, 26% cited this as a negative factor due to

the effect on their family of having to work unsociable hours (Figure 4.21). (This 26% were more likely to list ‘On-call’ and ‘Shift work’ as part of their additional responsibilities).

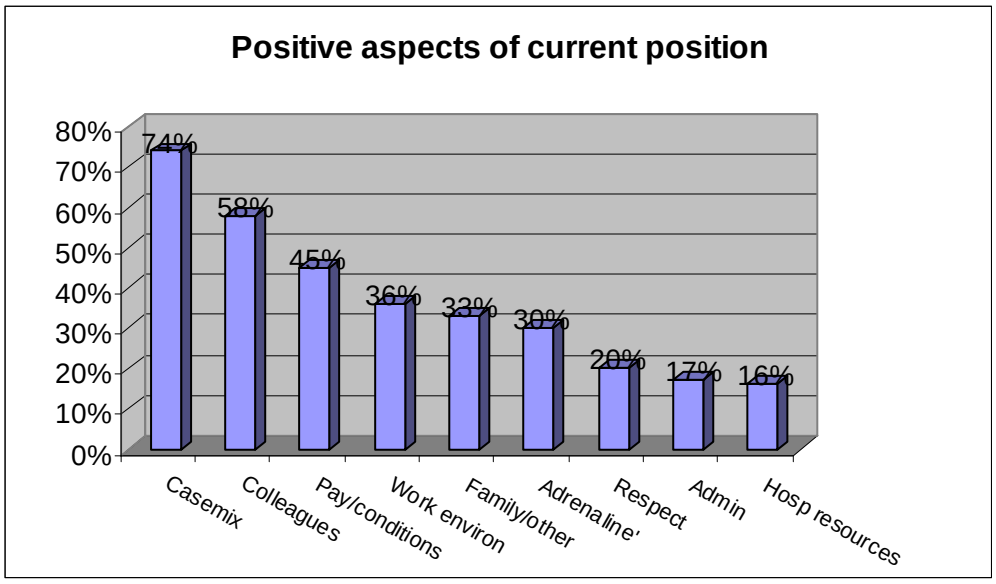
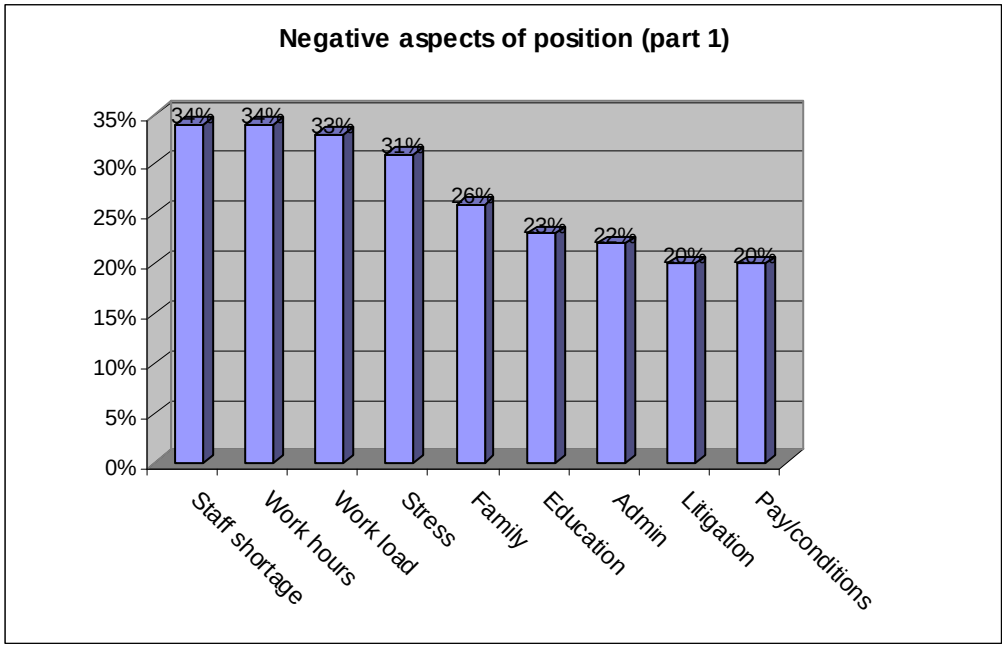


Figure 4.20 Percentage of respondents by positive aspects of current position (n = 230)

4.2.14 Negative aspects of current position

Many respondents identified multiple areas of dissatisfaction in their position (Figure 4.21). There was no one outstanding negative aspect but a much wider range of responses than with the positive features. Many respondents also took the opportunity to make further comments on negative factors in the free text 'Other comments' section (see also Figure 4.24). Medical staffing levels, work load, excessive working hours and the stress this produced rated as the most consistent features. Effect on family life was noted in the previous section.

Lack of education was more likely to be rated as a negative aspect by junior medical staff and OTDs. Risk of litigation was identified as a negative feature by 20% of respondents even though this is still quite a rare occurrence in the Australian setting. Access block, not surprisingly, was less an issue for the non-metropolitan hospitals. Similarly, violence in the workplace would generally be regarded as more of a problem in the urban and city environments. 'Other' responses included difficulties in travel to work, quality of other medical staff and lack of College accreditation.



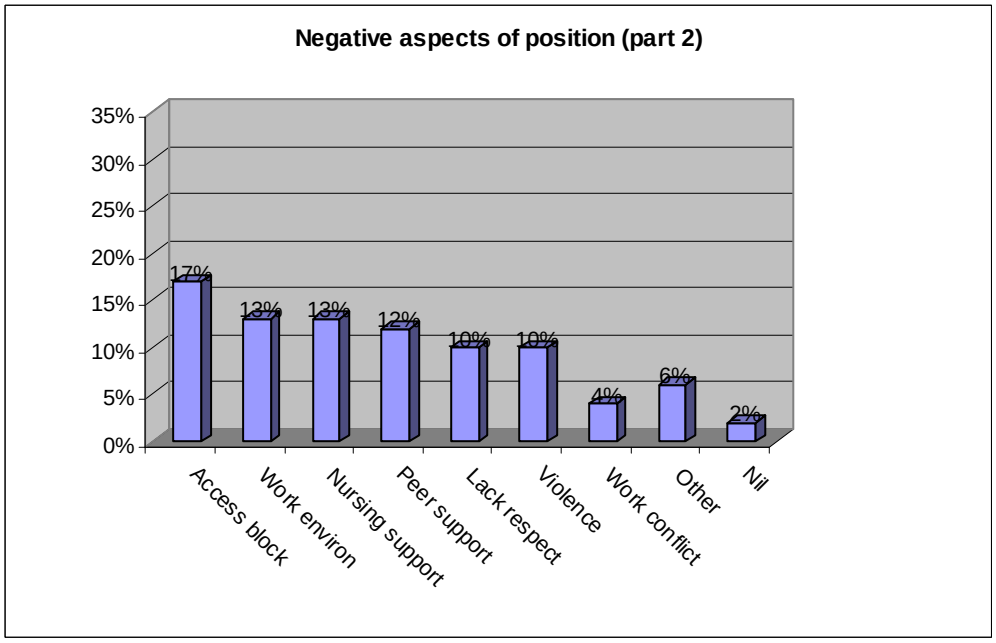


Figure 4.21 Percentage of respondents by negative aspects of current position

(n = 227)

4.2.15 Future plans over the next five years

While one third (71/216) of respondents reported no intention to change their current situation, the majority indicated they were likely to make a substantial change. For many, this included moving to another hospital or clinical area, reducing hours of work, reducing involvement in emergency medicine, or leaving the workforce altogether. Only 12 respondents (6%) had an intention to increase their involvement in emergency medicine. 24 respondents (11%) indicated a combination of moving to another hospital and/or working less in emergency medicine and/or working in other clinical areas. These figures add further to the impression that the current workforce has a significant degree of instability and uncertainty for the future.

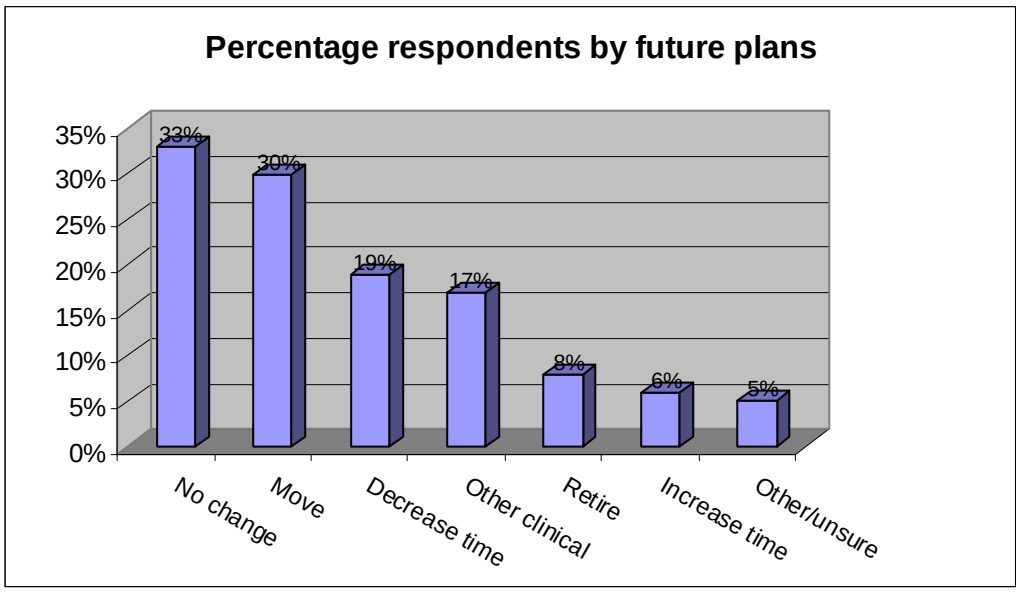


Figure 4.22 Percentage respondents by future plans over the next five years (n = 216)

4.2.16 Plans for future emergency medicine training

Weekend and similar 'short course' educational activities were by far the most popular intended training (59% or 126/213) (Figure 4.2.23). Almost certainly, this popularity reflected the small time commitment and relatively easy access to these programs. While 15% (31/216) had an intention to pursue an advanced skills term in EM through the RACGP, 20% of respondents (42/216) indicated a desire to undertake a specific Postgraduate Diploma or Certificate in EM. There was no readily accessible postgraduate course in Australia at the time of the survey. The likely availability of a FACRRM Advanced Skills Year in EM may influence responses in the future. 12% of respondents (25/216) indicated an intention to pursue the FACEM – consistent with the 11% of respondents who earlier identified themselves as accredited or non-accredited registrars.

While the number of 'No plans for higher EM training' seemed high (47/216 or 22% of respondents), it should be noted that all but seven of these respondents indicated their future plans were to move to another hospital and/or work in another clinical area and/or reduce hours in emergency medicine. The 'stayers' in the EM workforce overwhelmingly saw a need to obtain further education.

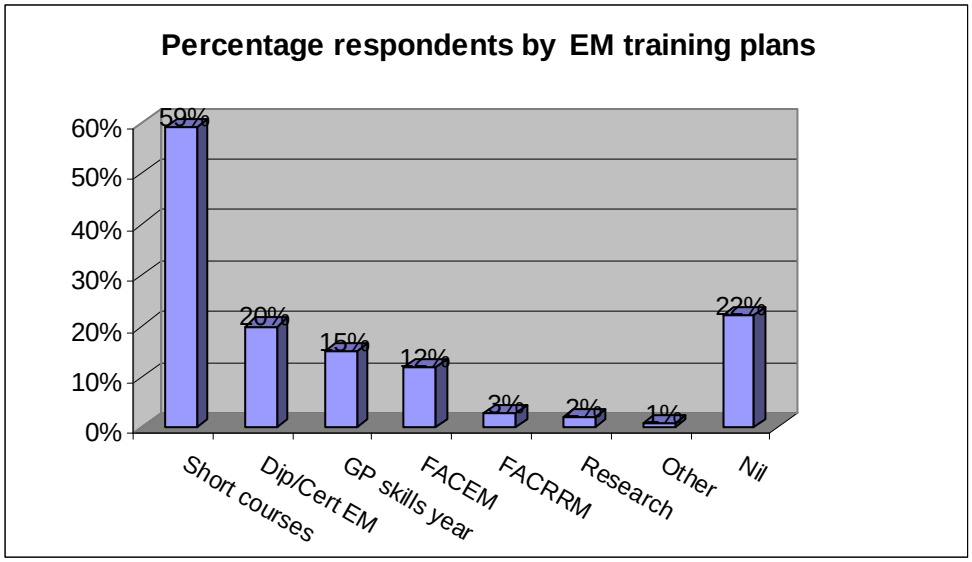


Figure 4.23 Percentage respondents by plans for future EM training (n = 213)

4.2.17 Additional free text comments

Respondents had already been given the opportunity to 'tick the boxes' on positive and negative aspects of their current position (Figures 4.20 and 4.21). Many respondents (63% or 146/230) took the opportunity to provide further information in the free text section. These additional comments were overwhelmingly negative although a number included suggestions to address perceived deficiencies. It was unexpected to receive such a number and range of additional negative responses. Some of these were particularly vehement.

Negative comments that were not reflected in the responses shown in Figure 4.21 included:

- "ACEM does not recognise prior experience. FACRRM and FRACGP are regarded as inferior"
- "Hospitals have poor strategies for retaining quality, committed staff"
- "FACEMs regard themselves as supervisors and don't want to see patients"
- "Admin cancels education and upskilling sessions due to staff shortages"
- "Government support for rural upskilling does not extend to ED docs"
- "No time allocation for study"
- "ACEM only looks after its own in the city hospitals"
- "FACEMs are too frightened to go to the country"
- "Examination processes for OTDs are unfair"
- "Rural Australian EDs are substandard"

- “Over reliance on poorly trained OTDs and short term locums”
- “Too many docs working nights just for the money”
- “Unsafe being the sole doctor on duty”
- “Telephone advice from specialists is condescending and unhelpful”
- “Too many Category 4 and 5 patients puts the pressure on”
- “Lack of back up services on weekends”
- “No mechanism for dealing with trivial complaints that impact on staff morale”
- “CMOs not appreciated”
- “Increased expectation of supervising juniors and OTDs”
- “FACEMs jealous and want to get rid of GPs”
- “Little time to upgrade skills”
- “Non-specialists provide a second class service”
- “Don’t need FACEMs, generalists are very competent”
- “Unsustainable staffing levels in rural EDs”
- “Would have done FACEM but didn’t want to move from the country”
- “Lack of understanding for female colleagues with children”
- “Deficiencies in GP training means many patients present to the ED”

Many correspondents took the opportunity to make suggestions on how training, education and general employment issues could be improved. A total of 83 respondents made comments on the specific need for relevant training and career structure for those working in rural EDs. Comments included:

- “Junior docs need more access to senior support”
- “Regional hospitals should have more recognition for training”

- “CMOs need financial reward for doing CME, MOPS, further qualifications”
- “Need alternate pathway to ED credentialling”
- “Needs standardisation of EM training for rural and remote docs”
- “Many GPs would like to combine general practice and EM”
- “Need rotations to anaesthetics, ICU, CCU”

Only 8 respondents made clear positive comments that were mostly rather mild. These included:

- “Being a GP adds balance to ED work”
- “Happy with the training I am getting”
- “Good to be part of the team”
- “Great hospital, good teaching”

And most surprisingly

- “Glad I can still contribute at the age of 80”!

4.2.18 Summary

Although there are some differences, the composition of the surveyed workforce was broadly consistent with that reported by AMWAC and other agencies on the wider rural workforce. This supports the assumption that the number and variety of doctors surveyed was a representative sample of the rural ED workforce.

Issues of postgraduate qualifications, prior experience, and commitment to continuing medical education suggested that a significant proportion of the workforce lacks sufficient training to undertake a high level of emergency medical care, particularly in the relatively unsupervised rural environment with limited specialist backup and support. In contrast, there were also many in this workforce who have spent a large part of their professional life working in emergency medicine. No doubt, a great deal of on-the-job knowledge and skills have been acquired despite a lack of formal training.

Like other areas of generalist practice, many in the rural emergency medicine workforce were carrying additional clinical and non-clinical responsibilities – almost certainly to a greater degree than their city colleagues who have the 'luxury' of many sub-specialities and support services to call on. Such a burden may be an additional barrier to undertaking further training.

There appeared to be considerable instability in the workforce with many doctors planning to move from their existing position. There also appeared to be a degree of 'recycling' with doctors moving between similar rural positions.

While there were certainly significant positive aspects of the job that relate to the interesting clinical work shared with supportive colleagues, it seemed clear from the responses that many in the rural and regional ED workforce felt they were over-worked, under-valued, under-trained, and lacking a meaningful career structure. It was evident that professional rivalries and jealousies

existed between various sections of the workforce. There was a strongly held suspicion that conventional specialist training does not meet the needs or wishes of the non-specialist workforce.

4.3 Research Question 3

What are the major issues identified by medical workforce stakeholders in recruiting, educating, training – and sustaining – a rural emergency medicine workforce?

4.3.1 Introduction

53 persons were interviewed representing a broad cross-section of senior clinicians, employers, educators, administrators and organisational representatives (Appendix B). The persons interviewed were specifically asked to comment on workforce shortages and projections, recruitment strategies, education and training programs, as well as solutions to address perceived workforce problems.

While the number of potential interviewees would be huge, it is *assumed* that this relatively small number gives a reasonable overview of the most common opinions amongst those with the responsibility of training and recruiting emergency medicine doctors. During the course of these interviews, it was common for other potential interviewees to be identified – *"Have you also spoken with X who has a real interest in this topic?"* This inevitably opened up other lines of enquiry.

4.3.2 Country of current practice

The majority of those interviewed were from Australia as this group was the most easily accessible (67% or 36/53). An unexpected finding was that more than half of those interviewed had worked in other countries during some part of their professional career (28/53). Most of those with specialist qualifications had worked in other countries as part of their speciality training or prior to 'settling down' after obtaining their specialist qualifications. Not surprisingly, there was considerable crossover between Australia and New Zealand as well as Canada and the USA. Coincidentally, of those interviewed, two were Canadians currently working in Australia and one was an Australian working in Canada. This international experience adds to the reliability of the conclusions drawn from the interviews.

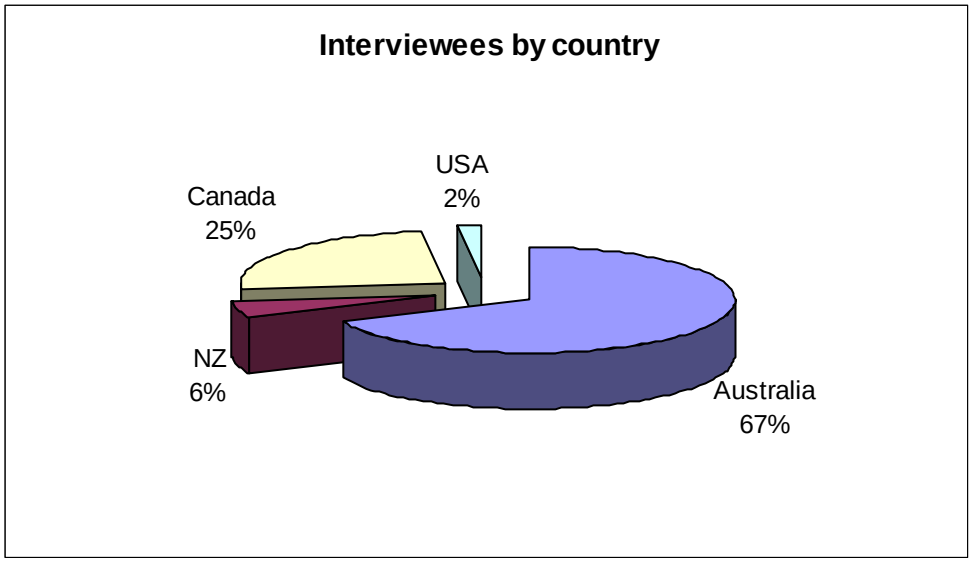


Figure 4.24 Interviewees by country of current practice (n = 53)

4.3.3 Principal role of persons interviewed

Many of these individuals had multiple roles – for example, a Director of the Emergency Department would invariably have a considerable administrative role and non-specialist doctors often carry additional clinical responsibilities. All those interviewed had some degree of involvement and responsibility for recruitment within their hospital or organisation. For simplicity, the *principal* role of the individual has been used to illustrate the range of stakeholders consulted (Figure 4.25). 'Other clinical' included doctors working in non-emergency medicine specialities or other organisations such as RFDS. 'Admin' included educators and recruiters as well as CEOs and Directors of Medical Service.

As previously indicated, a potential bias existed here as a number of individuals only spoke on condition of anonymity, not wishing their views to be interpreted as that of their organisation or employer. It was also possible that the individuals interviewed were generally more sympathetic to the needs of rural and regional areas than those whose clinical practice and emergency medicine involvement was mainly city based.

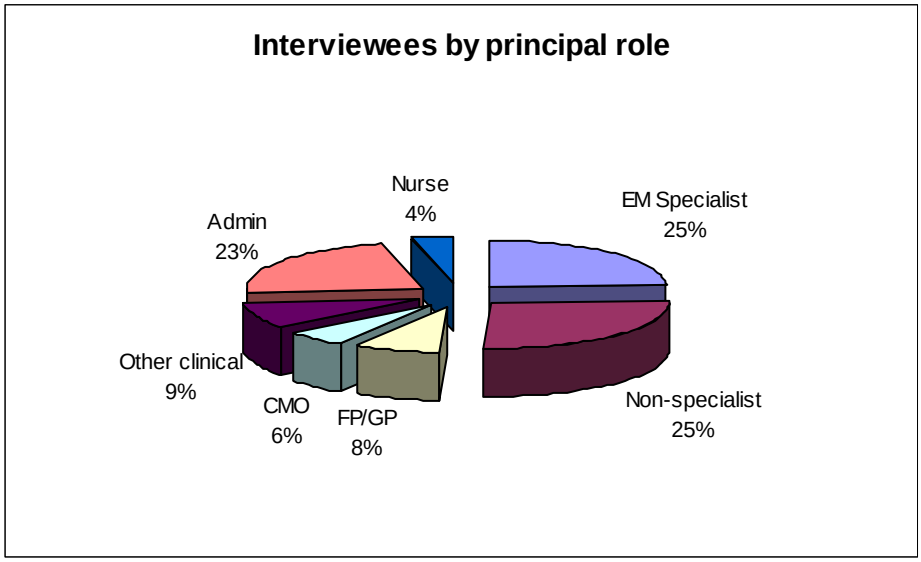


Figure 4.25 Categories of persons interviewed by principal role (n = 53)

4.3.4 Preferred solution to workforce shortages

There were a number of consistent themes that emerged from these interviews. In particular, these can be summarised as follows:

- There is a major shortage of suitably trained and experienced doctors to meet the current needs of rural and regional emergency medicine.
- This shortage is expected to worsen in the near future.
- The heavy reliance on doctors educated in other countries creates additional problems relating to standard of training, language and communication, cultural issues, and resources required to support their professional development.
- There has to be more to recruiting and retaining than simply offering larger remuneration.

Not surprisingly, there was considerable divergence in opinion on what could or should be done to improve the situation. There were four broad, but somewhat contradictory, themes expressed on future directions for the EM workforce. Some of those interviewed expressed opinions with varying degrees of support for more than one alternative. Four of those interviewed did not express any particular solution. 'Radical' views included all those suggestions not encompassed by existing training schemes. The principal preferred option has been used to categorise opinions into the four broad themes (Figure 4.26).

1. *The 'more specialists' view (22% of interviewees):* "By providing funding and expanding the number of specialist trainees, as well as

making conditions more attractive for rural specialists, will ultimately translate into a highly skilled EM workforce in the rural and regional hospitals raising them to the same standard as major city hospitals. This will also have a flow-on effect of more accredited hospitals and more training opportunities outside the existing training institutions".

2. *The 'more general practitioners' view (30% of interviewees):* "The rural and regional workforce is the domain of generalist practitioners and there needs to be more funded GP training posts. Existing training schemes encompass emergency medicine and this is quite appropriate for most rural and regional areas together with existing short course certificates and locally based training".

3. *The 'more Overseas Trained Doctors' view (10% of interviewees):* "As there will be insufficient locally trained staff for the foreseeable future, there should be aggressive recruiting from other countries with a 'fast-tracking' process to expedite visas and registration for these doctors. This should be linked to an education system to bring them up to the required standard as soon as possible".

4. *The 'radical' view (38% of interviewees):* "Traditional specialist college based education systems have failed to meet the emergency medicine workforce needs of rural and regional communities. The flow-on effect from additional undergraduate and specialist training positions is uncertain. Therefore alternative and innovative ways of addressing the problem are a matter of urgency".

Suggested strategies included: more comprehensive generalist training; university based courses; distance education modules; alternative pathways to the FACEM qualification; automatic recognition of overseas EM qualifications; expanded short course training; alternative emergency medicine qualifications; expanded nurse practitioner programs and other alternative service delivery.

While these interviews looked mainly at the training and education needs of the EM workforce, there was also opportunity to reflect on other aspects of recruitment and retention that require consideration. The issues identified by specialists and GPs, and outlined in the Literature Review were frequently mentioned. These included:

- Remuneration that reflected the complexity and responsibility of the work undertaken
- The onerous on-call and fragility of services that were key person dependent or at risk when there were few individuals to share rosters
- The need for adequate and appropriate Continuing Professional Development
- The importance of support for partners and dependents to address social, educational, cultural and employment needs

In addition, there were also more cynical views expressed that perhaps reflected the frustration of those who have many years of experience of difficulty recruiting suitable medical staff. These views included:

- “The reliance on OTDs has caused difficulties in many areas and greater effort should be made to recruit more appropriate junior and specialist medical staff”.
- “Remuneration for medical staff is quite adequate by community standards and the demands for higher and higher locum rates and salary packages reflect the greed of some individuals and organisations”.
- “There are too many players in the education/training of the medical workforce. As a result, too much time and money is spent on professional rivalry and duplication of schemes with unproven outcomes”.

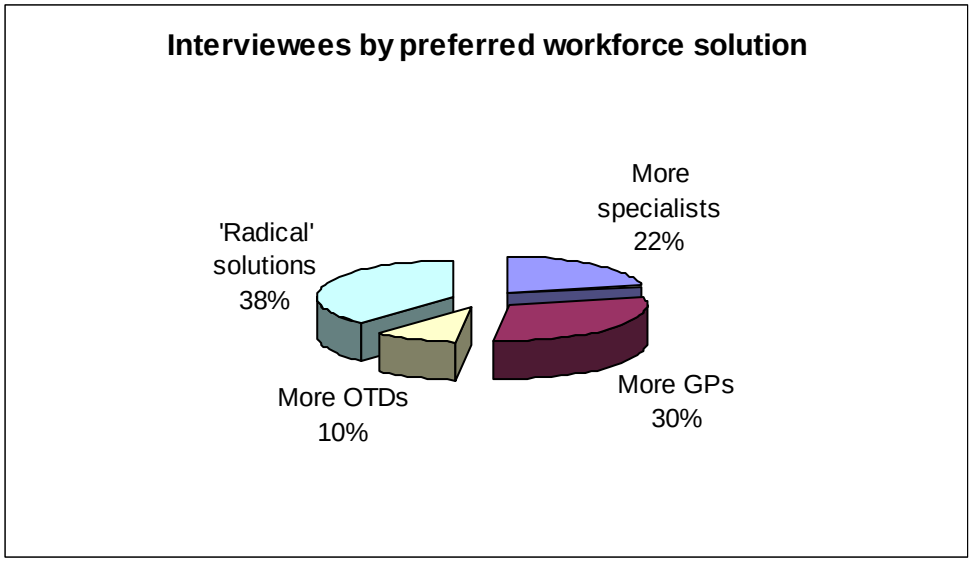


Figure 4.26 Interviewees by preferred solution to address rural EM workforce shortages (n = 49)

4.3.5 Summary

While the number of people interviewed was relatively small, it seemed there was considerable pessimism about existing education and recruiting strategies meeting the needs of rural and regional emergency medicine. This was also reflected in the divergence of views expressed on solutions to the workforce shortage. Only a small proportion saw the increased use of OTDs as beneficial. All agreed that there must be at least some changes in existing strategies – but no clear agreement as to one preferred strategy. Similarly held views were expressed in Canada and New Zealand although with a greater tendency to support the 'More GPs' view. This perhaps reflected the additional EM training pathways for non-specialists in those countries.

Generally, the opinions expressed in these interviews mirror those barriers to recruitment and retention found in the literature, the responses to the workforce survey as well as the varying advertising strategies being used.

4.4 Research Question 4

What relevance do other medical training programs and delivery of emergency medicine services in other countries have for rural and regional Australia?

4.4.1 Other Australian training programs

Joint college programs for GPs in the discipline of anaesthetics and the discipline of obstetrics are well accepted as a 'standard' for doctors providing these services in rural areas. The success and popularity of these programs suggests that a similar approach in other disciplines would be welcomed.

Specific rural pathways for general surgical and physician training are still in their infancy. The small numbers of participants in these streams would appear to have minimal impact on the numbers of rural specialists nearing retirement or departing for other reasons. It remains to be seen if the barriers to making such options more attractive can be overcome, or whether the trend to sub-specialisation will make any generalist pathways largely obsolete. An Advanced Skills term as part of FRACGP and FACRRM training will undoubtedly contribute to the skills and knowledge of those undertaking such training but will still be constrained by the necessity of being true generalists across the entire medical spectrum. The ongoing competition between RACGP and ACRRM as to ownership of rural training may only serve to confuse other stakeholders and devalue the recognition of such training for 'specialist' practice.

4.4.2 New Zealand comparison

While New Zealand does not have remote rural areas comparable to Australia and Canada, there is marked similarity with the bulk of New Zealand's population living in large urban centres and indigenous people having more significant health problems than those of European origin. There is a similar shortage of health professionals in rural and regional areas, particularly specialist medical practitioners. The specialist training program for emergency physicians is identical to that in Australia and comes under the umbrella of the ACEM. Many of the specialist colleges and professional organisations in Australia are in fact *Australasian* and there is reciprocal recognition of basic and specialist qualifications between both countries.

Of importance, the New Zealand concept of non-specialist doctors (formerly termed Medical Officers of Special Scale or 'MOSSs') has given a career structure to this section of the workforce for many years. The Accident and Medical Practitioners Association (AMPA) has been a strong advocate for recognition of this section of the workforce and development of appropriate postgraduate qualifications relevant to practising emergency medicine in smaller hospitals and community settings. Such qualifications have been developed in conjunction with university based programs. The success of AMPA has not only improved the career structure of these doctors, but has also achieved recognition by the NZ Ministry of Health of 'Accident and Medical Care' as a specific area of medical practice. It is interesting to note the choice of the wording 'Accident and Medical' and avoidance of the word 'emergency' so as not to cause offence to the specialist college.

4.4.3 Canadian comparison

Canada is a vast country with sparsely populated rural areas particularly in the harsh sub-Arctic regions and the provinces of Yukon, North West Territories and Nunavut. Towns with fewer that 10,000 residents account for 22% of the Canadian population but have only 10% of the nation's physicians. Larger centres with between 10,000 and 100,000 residents account for 16% of the population and yet have only 12% of the medical practitioners.

Similar to Australia and New Zealand, indigenous people in Canada (the 'First Nations') are a significant proportion of the population in rural areas – and like indigenous Australians, a shift from traditional lifestyles and the impact of western 'culture' has had a deleterious effect on standards of health. Alcohol and substance abuse is significant particularly in urban areas, but less so amongst the Inuit people of the far north who lead more traditional lifestyles and who have maintained strong cultural beliefs.

Like the Rural Doctors Association of Australia, the Society of Rural Physicians of Canada is passionate in its support of the rural workforce and the wide variety of 'specialist' skills they bring to rural communities particularly in the procedural fields of obstetrics, anaesthetics, surgery and emergency medicine. The Canadian Association of Emergency Physicians (CAEP) has shown a great deal of interest in rural emergency medicine services in recent times. While principally being the organisation for specialist practitioners, CAEP has developed educational outreach programs and also produced guideline for standards in rural emergency departments.

The evolution of Nurse Practitioners in Canada is further developed than in Australia but has not been without difficulty. Differences between provinces, resistance by some sections of the medical workforce, and disagreements over scope of practice, skill set, educational standards, remuneration and independent practice have made this a complex picture [147]. Like other countries, it would seem that the role of NPs fits more easily within rural primary care medicine than in the emergency department setting [148].

While the CCFP-EM qualification is an attractive pathway for Canadian doctors pursuing a career in emergency medicine, there is clearly some disquiet in the Canadian College of Family Physicians. Originally, the intention of the CCFP-EM qualification was to improve the skills of family physicians who also needed to provide emergency medicine services. For a variety of reasons, few of the CCFP-EM doctors also practise family medicine, hence provoking criticism that much needed family medicine training posts are being occupied by doctors whose intention is to pursue a career in emergency medicine – and pursue this pathway in preference to the more rigorous specialist RCPC program [189]. Therefore, it can be argued that the objectives of establishing the CCFP-EM program have not been achieved and careful thought needs to be given to the introduction of any similar program in Australia. Alternatively, it has been argued that having emergency physicians with a strong grounding in family medicine brings a far better understanding of broader health issues relevant to the generalist nature

of emergency medicine – something that perhaps gets lost in the more academic specialist programs.

4.4.4 Summary

Other specialist disciplines as well as the generalist disciplines have acknowledged the deficiencies and unique difficulties providing medical services outside the urban environment. Non-specialist obstetric and anaesthetic training is well established and well supported by general practitioners. New programs in other specialist disciplines are in their infancy and it remains to be seen if these will have substantial impact on attrition from the rural specialist workforce. New Zealand and Canada have taken specific steps to raise the profile of emergency medicine training for non-specialist doctors although such programs still struggle to achieve credibility with traditional specialist training. The strengths and weaknesses of these other training pathways can provide valuable lessons for non-specialist emergency medicine training in Australia.

4.5 Research Question 5

What areas need to be addressed in developing a new emergency medicine qualification more relevant for doctors practising in rural and regional Australia?

4.5.1 Introduction

Results of the workforce survey indicated that the majority (78%) of respondents felt a need to undertake some form of additional emergency medicine training (Figure 4.23). 15% intended to undertake an RACGP advanced skills term in emergency medicine, while another 20% specifically indicated a desire for some form of Postgraduate Diploma or Certificate even though no opportunity existed in Australia at the time of the survey. Currently the ACRRM Advanced Skills Year in emergency medicine is still under development. It was also noted in the survey results that just over half of the respondents did not participate in any formal CME or MOPS program. While the option of a new rural EM curriculum was not specifically canvassed in interviews with stakeholders, the 38% of interviewees who suggested 'radical' solutions to address workforce shortages did so because of the perceived failure of traditional education and training programs (see Chapter 4.3).

4.5.2 Location of training

The concept of specialist medical qualifications generally involves training undertaken in large metropolitan centres where the critical mass of teachers, clinical resources and patients is located. Rotations to regional and rural

hospitals for part of this training are limited and often not enthusiastically embraced because of the disruption to family and professional life. The AMA takes the view that such rotations should be encouraged but entirely voluntary [50]. Compulsory rural rotations risk being counterproductive and may discourage practitioners from considering a long term career in a country town. Only the largest regional centres can replicate the resources required for specialist training. Some of these centres are at risk of losing accreditation for specialist training when teaching resources are entirely dependent on a few personnel and a key person leaves the organisation. In the case of FACEM training, more stringent standards are being introduced by the College with the result that some smaller accredited hospitals will now fall short of the required level of supervision and teaching demanded for postgraduate training.

Where training is not required at the same level or intensity as specialist courses, then there is greater opportunity for smaller centres to play a role. In the same way that FACRRM and FRACGP training can be undertaken in rural and regional centres, it is logical that any new curriculum of 'rural' emergency medicine training could also be delivered in those centres. The opportunity then also exists to experience emergency medicine in the even more remote context of small district hospitals and isolated communities.

4.5.3 Principles and framework

While a basic knowledge of emergency medicine would be assumed, a new curriculum would need a sound framework that underpins the required clinical knowledge and skills. From responses received to the survey of the existing

workforce and the interviews with stakeholders, the suggested principles would include:

- prioritisation of undifferentiated emergencies
- recognition of the seriously unwell patient
- enhanced skills, knowledge and competence in patient management
- provision of safe patient care
- understanding the context of emergency medicine in a rural environment
- effective communication
- effective use of limited resources
- leadership

4.5.4 The curriculum

There is still the 'Catch 22' problem of having sufficient teachers with sufficient time in a potentially under-resourced centre to provide the required mentoring and supervision at the expense of reduced clinical time. Staff shortages and lack of education were commonly raised issues in the workforce survey. Similarly, there would still be areas of training potentially difficult to undertake in smaller centres and this may require rotations or blocks of time attached to larger metropolitan centres. Like the unpopularity of some rural rotations for speciality training, a similar issue may arise for 'big city' rotations when training for a more rural qualification. Innovative measures that address the issues of social and professional disruption need consideration for rotations in either direction.

There is also the often expressed need to address those specific aspects of practice relevant to smaller hospitals in rural and regional areas. These aspects may not exist in larger hospitals that are able to delegate to sub-speciality or various support services. For example, obstetric and neonatal problems would rarely present to major city emergency departments. On the rare occasion such presentations do occur, they are rapidly re-directed to the relevant hospital department. Other examples include dental emergencies, emergency contraception and sexually transmitted infections – issues that, once again, are usually managed outside the emergency department. In most rural and regional hospitals, the emergency department is often the only available health facility to provide immediate access and advice for these problems.

Beyond the clinical management issues, the rural emergency medicine doctor may also be expected to have a broad range of skills and knowledge in such diverse areas as pre-hospital care, disaster management, retrieval and transport, medico-legal issues, staff management, leadership, medical imaging, and point-of-care pathology testing. (Suggested curriculum content is further outlined in Appendix F.)

It is also clear that there is a degree of professional jealousy and disagreement between the various players in medical education and service delivery. A variety of views exist on how educational programs should be examined or assessed. Careful consideration needs to be given to the implementation of any new curriculum and training program to ensure it fills a need and

complements existing programs rather than adding another level of fragmentation.

4.5.5 Workforce issues

It has already been noted that a section of this rural EM workforce has acquired a considerable amount of highly relevant knowledge, skills and experience. Recognition of prior learning is likely to be vitally important to encourage such skilled doctors to pursue a formal qualification.

The apparent instability in the workforce and the large number of negative issues raised in the workforce survey suggest that much more needs to be done as part of ensuring a viable career structure for rural emergency medicine doctors. There is undoubtedly a demand for quality teaching that minimises the need to relocate to large city institutions.

However, there is clearly more to developing a qualification than just providing an educational program. Issues such as flexibility of training, adequate remuneration, consideration of partners' careers and children's schooling, sustainable rosters, reasonable workloads, peer support, and a pleasant working environment are all factors that contribute to the sustainability of a good workforce. Failure to address these may well make any new educational program irrelevant.

4.5.6 Summary

There seems little doubt that there is a need for further (and relevant) training in emergency medicine, however, the best mechanism for achieving this is far from clear. While there is certainly interest in the concept of a new model of EM training relevant to rural and regional areas, there are numerous issues that require closer examination. These include not only the educational content of any new curriculum, but also the principles on which it would be based, how it would be taught and assessed, as well as how any new training program would complement existing pathways. Lastly, the broader lifestyle issues that are increasingly important to the younger workforce deserve close attention.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Current human resources practices in health care may well be unsustainable in the climate of increasing demand. Hawkins in Canada reports on a number of negative health trends identified at the 2006 Trilateral (UK, USA and Canada) Conference on Health Care [276]. As well as the increased demand for health services, public demand for 'Mercedes/Cadillac' health care and the increasing introduction of new technologies means health is consuming larger and larger proportions of government budgets. Hawkins suggests that, ultimately, it will be the rural and under-serviced areas that will be most affected by these unsustainable demands. The Australian electorate (and governments) have generally been unwilling to debate the value of introducing very expensive 'cutting edge' treatments and technology in tertiary hospitals to the detriment of spending on proven illness prevention and health treatments for other sections of the population.

It is currently a 'sellers market' in trying to recruit suitably trained medical staff to the large number of emergency medicine vacancies. Difficulties are also being experienced in recruiting emergency specialists to large metropolitan hospitals, albeit to a lesser extent than the recruiting problems in rural and regional hospitals.

It is clear that improving the numbers and standards of the emergency medicine workforce in rural areas (or indeed, any other group of health professionals in rural areas), involves far more than simply placing an advertisement and picking out the best from a field of suitably qualified and enthusiastic applicants.

There will be a long lead time before new medical schools and increased numbers of undergraduate places impact on the rural workforce. Current evidence would suggest that additional medical school graduates will barely keep pace with population growth – exacerbated by reduced working hours and increasing attrition from the existing workforce for lifestyle reasons. The short term solution of recruiting more Overseas Trained Doctors from developing countries raises moral and ethical issues as the supply from other affluent 'western' countries dries up. (These affluent countries are also recruiting in Australia to address their own shortages). Innovative practices such as Emergency Nurse Practitioners (ENP) and Expanded Scope Paramedics are likely to have an increasing role particularly in small communities, but are still unlikely to fill the service delivery gaps between acute primary care and specialised emergency medicine practice. While it seems there will be further blurring of the traditional roles of doctors, nurses and other health professionals, it would appear that the role of ENPs will mostly be at the 'minor' end of injury and illness. No doubt this contributes to patient satisfaction but is unlikely to improve the major issues of access block and ED overcrowding.

Recurring themes of remuneration, peer support, locum relief, family needs, after-hours and on-call commitments, and access to training and professional development, are widespread in all rural health disciplines. Some of these factors are more easily addressed than others. More money is not always the answer – as evidenced by the Queensland Government's ongoing difficulty in attracting new staff to 'problem' hospitals. Indeed, the inflated salary packages on offer may only serve to exacerbate problems elsewhere in the country by creating a more volatile and restless workforce.

Despite this, emergency medicine is a popular career choice for postgraduate training. The excitement, challenge and variety of clinical work all have strong appeal. The opportunity to undertake training part time and practice part time makes emergency medicine a specialist career more compatible with family life than many other career pathways. Translating this to the rural and regional environment is more difficult.

It comes as no surprise that a rural background, positive rural experiences as a student, and training relevant to rural practice will, at least, encourage the future workforce to consider practising outside the major metropolitan centres. A significant difficulty appears to be maintaining enthusiasm and interest in those attracted to rural practice in the first place. This research adds to the evidence that ongoing quality teaching *in the rural and regional setting* which leads to a recognised qualification and career structure, will help address significant deficiencies with the existing workforce. The RDAA concept of team based 'specialised' care rather than individual based 'specialist' care

seems especially relevant here. By working to retain the existing workforce, the recruitment of replacement and additional practitioners then builds on a stable and sustainable base. The principal focus here is on the long term outcome of producing a suitably trained and sustainable emergency medicine workforce for rural and regional areas, rather than the more narrow focus of curriculum development and examination.

In conclusion, the original hypothesis ***"that the training, education and support of emergency medicine doctors in rural and regional Australia is inadequate for the level of services required",*** is neither proved nor disproved. It seems the current situation is far more complex than this simple statement suggests. As a *generalisation*, this statement is perhaps true, and is supported by the bulk, but by no means all, of the information collected in this study. There is a great deal of training and education available, the difficulty being that much of it is not easily accessible or attractive to those who need it. Little is known about the effectiveness of current programs. Levels of support are variable and range from enthusiastic within some organisations to minimal in others. There is insufficient information on the quality of care delivered. Logically, the level of care provided by less experienced or knowledgeable practitioners will fall short of that provided by more highly trained doctors. Emergency medicine services extend beyond just the medical profession, and the roles of other health professionals will increasingly blur traditional boundaries.

5.2 Recommendations

Through the exploration of the research questions, this study provides a greater understanding of the current situation and the difficulties to be faced in training the future workforce. While acknowledging the complexities of delivering high quality emergency medicine services to rural and regional Australia, this study proposes a way forward to help address some of those training and education deficiencies identified. In particular, the following recommendations have arisen as a result of the study:

- It is recommended that a specific postgraduate qualification in emergency medicine be developed that meets the needs of doctors who wish to practise in more generalist settings outside major institutions, but who still require substantial skills and knowledge beyond the level of conventional general practice. (Elements to form a suggested curriculum are outlined in Appendix F).
- Ideally, prospective candidates for this qualification would have a minimum of three years' postgraduate experience including at least six months' prior experience in emergency medicine.
- The assessment, examination and awarding of such a postgraduate qualification should be an extension of existing academic programs within a relevant university or educational body.
- Such a qualification would seek to complement, not replicate, the emergency medicine components of the FACRRM and FRACGP qualifications.

- Such a qualification would not be an alternative pathway to ‘specialist’ emergency medicine recognition, but should have substantial recognition of prior learning for later FACEM training.
- There should also be recognition of prior learning for those doctors who have already undertaken relevant training in other generalist or specialist disciplines.
- The delivery of teaching and clinical experience required would, as far as possible, be located in those institutions and communities that already have a strong rural and regional focus (including a network of more remote health facilities) and established undergraduate and postgraduate educational programs. This could include such settings as RFDS, Australian Defence Forces and the Australian Antarctic Division.
- Hospitals participating in such training should be of sufficient size and complexity to provide a broad range of services – but not so large or complex as to be focusing mainly on knowledge and skills for specialist credentialing. These hospitals should have emergency departments that receive the entire range of undifferentiated adult, paediatric, women’s and psychiatric cases.
- The duration of the course should be for a minimum of 12 months of which nine months is spent in the emergency department, and three months in a combined ICU/CCU. It is also recommended that the course includes a regular weekly anaesthetic session. A balance needs to be struck between sufficient length of training to attain the required

knowledge and skills – but not of such length that the focus is lost when training for the specific needs of rural and regional hospitals.

- Part of the service commitments of such a training position should include an element of support/locum coverage to a total of two weeks in a small hospital facility within the regional hospital network.
- The option should be available for part time training to accommodate the needs of families, other work commitments or temporary withdrawal from medical practice.
- There should be a committed teaching faculty with relevant postgraduate qualifications and appropriately remunerated relevant conjoint university appointments.
- As far as possible, the teaching would have a 'problem based learning' approach within the clinical environment.
- Full advantage would be taken of other teaching modalities including simulation training, video conferencing with other institutions, and existing short courses such as EMST, ELS and APLS.
- A vibrant, stimulating and financially supported program of Continuing Medical Education and Maintenance of Professional Standards would be an essential ongoing requirement for such a qualification.
- Such a qualification must be recognised as a legitimate career path of higher training within the field of emergency medicine. As such, it should be rewarded with competitive remuneration and employment conditions to ensure it remains an attractive option for emergency medicine practitioners.

- There should be reciprocal recognition with equivalent programs such as those in New Zealand and Canada.

5.3 Areas for further study

During the course of this study, it became apparent that there were additional questions and challenges that arose as a result of reviewing the literature, the responses to the workforce survey, and the information gathered from the various stakeholders. Some of this information generated a revision and refinement of the research questions but it also became clear that there were a number of areas that would require additional study and exploration.

The following issues are outside the scope of this study, but are listed here to stimulate further discussion and research on improving training and education in rural and regional emergency medicine.

<u>Issues arising from the workforce survey</u>

- What is the extent of self directed learning and skills maintenance for doctors not participating in formal CME/MOPS programs?
- Are further studies required on quality of care, adverse events and clinical outcomes in smaller emergency departments?
- Why does there appear to be such instability in the workforce with many doctors moving between similar rural positions?
- Why is there such a high proportion of ED doctors who do not participate in out of hours and weekend cover?

- What clinical research is being conducted in rural emergency departments?

Issues relating to a new curriculum

- Should the 'owner' of such a qualification be an existing College, a University or a joint responsibility?
- With any new curriculum, would there be sufficient teachers with sufficient time to deliver it?
- Is three years' general postgraduate experience before embarking on such a postgraduate EM qualification too much or too little?
- Should there be specific requirements in those three years other than a minimum of six months' emergency medicine, for example, a three month general practice rotation?
- What credit should be given for having already obtained the FACRRM or FRAGP?
- Is 12 months long enough to incorporate all the suggested elements to a sufficient degree? What about the option of two years with the second year to incorporate elective modules from areas such as research, teaching, administration, quality assurance, disaster medicine, indigenous health, retrieval medicine, and extreme environment medicine?
- How would the curriculum be delivered? – specific modules, formal teaching, self directed learning or a combination?
- How would it be assessed bearing in mind the intended outcome is to produce suitably knowledgeable and *skilled* doctors?

- What level of qualification would be awarded?
- Would it be self funding or would some level of government assistance be provided – perhaps in the form of rural scholarships?

Longer term issues

- Is a long term study needed to look at practice location, retention in the workforce and career direction of doctors yet to undertake higher emergency medicine qualification?
- Could postgraduate nursing, paramedic (or any other health profession) studies also be a point of entry into a similar emergency medicine qualification but perhaps with particular emphasis on independent practice in smaller rural institutions?
- What, if any, role do community or consumer organisations have in decision making on emergency medicine services?

CHAPTER 6

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APPENDICES

APPENDICES

Appendix A

ETHICS APPROVAL

Dr Peter Arvier

Tasmania
DEPARTMENT of HEALTH and HUMAN SERVICES

Human Research Ethics Committee (Tasmania) Network

UNIVERSITY OF TASMANIA

9 JUL 2004

Northern Tasmania Social Sciences Human Research Ethics Committee (HREC)
APPLICATION APPROVAL

To:	Prof Judi Walker North West Rural Clinical School University of Tasmania Locked Bag 1372 LAUNCESTON
From:	Amanda McAully (Executive Officer)
Date:	7 July 2004
Subject:	**H7916**: The education and training needs of non-specialist doctors providing emergency medicine services in rural and regional Australia.

The Northern Tasmania Social Sciences Human Research Ethics Committee has recommended approval of this project. You are required to report immediately anything that might affect ethical acceptance of the project, including:

- serious or unexpected adverse effects on participants;
- proposed changes in the protocol;
- unforeseen events that might affect continued ethical acceptability of the project.

You are also required to inform the Committee if the project is discontinued before the expected date of completion, giving the reasons for discontinuation.

Ethics approval is subject to annual review, therefore not completing a report could affect the project's continuing ethics approval. Please submit your first report on this project by 3 June 2005. The Annual report form can be found on our website:
http://www.research.utas.edu.au/rdo/ethics/human.htm

Important: If research on the project has finished, please complete the above form selecting the "Final Report" option, and return as soon as possible for audit purposes.

Amanda McAully (Executive Officer)

University of Tasmania
Research and Development Office
Private Bag 1 **Hobart Tas 7001**
Ph: 6226 2763
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Appendix B

ORGANISATIONS AND INDIVIDUALS CONSULTED

Minimal details are provided in order to preserve the anonymity of individuals consulted as part of this process and the organisations they represent.

1	ED Director	Queensland
2	Emergency Physician	Northern Territory
3	Medical Administrator	South Australia
4	Education Administrator	South Australia
5	Medical Educator	South Australia
6	Rural GP	South Australia
7	Non-specialist rural EP	Western Australia
8	Rural Medical educator	Western Australia
9	College administrator	Queensland
10	Non-specialist rural EP	Queensland
11	Rural EP	Victoria
12	Medical educator/GP	Queensland
13	Non-specialist rural EP	New South Wales
14	Rural CMO	New South Wales
15	Rural CMO	Victoria
16	Rural ED Director	Victoria
17	Rural EP	New South Wales

18	Rural GP/EP	Tasmania
19	Medical Administrator/GP	Tasmania
20	Non-specialist EP	Victoria/international
21	Nurse Practitioner	Victoria
22	Rural EP	Western Australia
23	EP/Educator/researcher	Victoria
24	Rural CMO	New South Wales
25	Rural EP	Queensland
26	Administrator/EP	New Zealand
27	Medical educator	New Zealand
28	Educator/EP	New Zealand
29	Rural Locum EP	Queensland
30	Non-specialist EP	Queensland
31	Medical Administrator	Queensland
32	Rural CMO	South Australia
33	Medical educator	Tasmania
34	College researcher	New South Wales
35	Rural CMO	Western Australia
36	ED Director/educator	New South Wales
37	EP/educator	New South Wales
38	Rural Locum EP	New South Wales
39	Rural EP	British Columbia
40	ED Director	British Columbia

41	Medical Educator	British Columbia
42	Medical Educator	British Columbia
43	Medical Administrator/GP	British Columbia
44	Hospital Administrator	British Columbia
45	Rural Family Physician	British Columbia
46	Medical recruiter	Manitoba
47	Emergency Physician	New Brunswick
48	EP/researcher	British Columbia
49	Medical recruiter	Manitoba
50	Medical educator	Ontario
51	EP/Medical educator	British Columbia
52	Rural EP	British Columbia
53	EP/Educator	Minnesota, USA

Appendix C

HOSPITALS SURVEYED

The following hospitals were approached either through the Director of the Emergency Department or the Director of Medical Services if there was no designated ED Director. There were no refusals to participate. Although some surveys were returned in envelopes with identifiable postmarks, most were indecipherable or had 'generic' mail exchange postmarks. No records were kept of hospital identity and therefore it is impossible to say if any hospitals were over or under represented in the returns.

Tasmania

North West Regional Hospital, Burnie*

Mersey Community Hospital, Latrobe/Devonport

Victoria

St John of God Hospital, Ballarat

Mildura Hospital

Warrnambool Hospital

Wimmera Base Hospital, Horsham

Hamilton Base Hospital

Werribee Mercy Hospital

Goulburn Valley Base Hospital, Shepparton

Wodonga Hospital

Swan Hill District Hospital

Wangaratta Base Hospital

Echuca Hospital

Bendigo Base Hospital*

Warragul Hospital

Latrobe Valley Hospital, Traralgon*

New South Wales

Wagga Wagga Base Hospital*

Broken Hill Hospital

Griffith Hospital

Bathurst Hospital

Goulburn Hospital

Taree Hospital

Grafton Hospital

Armidale Hospital

Albury Base Hospital

Dubbo Base Hospital*

Orange Base Hospital*

Kempsey Hospital

Maitland Hospital

Hawkesbury Regional Hospital

Blue Mountains District Hospital, Katoomba

Wingiecaribie Health Service, Bowral

Shoalhaven District Hospital, Nowra

Queensland

Bundaberg Base Hospital

Maryborough Base Hospital

Hervey Bay Hospital

Gladstone Hospital

Mt Isa Base Hospital

Mackay Base Hospital

Caloundra Hospital

Gympie Hospital

Rockhampton Base Hospital

Northern Territory

Alice Springs Hospital*

Katherine Hospital

South Australia

Whyalla Hospital

Mt Gambier Hospital

Port Pirie Hospital

Noarlunga Hospital

Riverland Hospital, Berri

Western Australia

Kalgoorlie Regional Hospital

Bunbury Hospital*

Geraldton Hospital

Port Hedland Hospital

Broome Hospital

Carnarvon Regional Hospital

Albany Hospital

* indicates accredited by ACEM for partial advanced training as at August 2005 (see also Appendix G)

Appendix D

MEDICAL STAFF INFORMATION SHEET AND SURVEY FORM

INFORMATION SHEET

EMERGENCY MEDICINE MEDICAL STAFF SURVEY

Chief Investigator: Prof Judi Walker, Associate Dean (Teaching and Learning) School of Health Sciences, University of Tasmania

Co-investigators: Dr Peter Arvier, Director Emergency Department, North West Regional Hospital, Tasmania

Dr Tom McDonagh, Emergency Specialist, North West Regional Hospital, Tasmania

Dear Colleague

We are undertaking a research project looking at the training and education of non-specialist doctors providing emergency medicine services in rural and regional hospitals in Australia.

While there are some Fellows of the Australasian College of Emergency Medicine in rural and regional areas, anecdotal evidence suggests the bulk of EM services in these hospitals are provided by Career Medical Officers, General Practitioners and junior medical staff. International Medical Graduates (Overseas Trained Doctors) form a large part of this group. The

qualifications and experience of these doctors varies enormously and there is no consistent approach as to what an employer might require for doctors providing these services.

The difficulties of recruitment and retention of medical staff in rural areas have been well documented. There is also no doubt that specialist medical staff are much more likely to be working in large metropolitan hospitals.
To gather more information about the doctors currently providing emergency medicine services in rural and regional hospitals, we would appreciate if you could take a few minutes to complete the attached survey and return to me in the stamped envelope. It is important that this survey is anonymous so please do not include your name or information that identifies your employer.
Participation in this survey is entirely voluntary and there is no payment for participating.
This research has received ethical approval from the Human Research Ethics Committee (Tasmania) Network. Any concerns about the ethical nature of this research may be directed to the Executive Officer, Ms Amanda McAully on 03 6226 2763.

When complete, we intend to present the results of this survey and recommendations at relevant ACRRM and ACEM meetings and submit for publication in a relevant journal.

If you have any queries about this survey, please contact Dr Peter Arvier on telephone 03 64306633, fax 64306691 or email peter.arvier@dhhs.tas.gov.au

SURVEY FORM

SURVEY OF MEDICAL STAFF WORKING IN RURAL AND REGIONAL EMERGENCY DEPARTMENTS

This survey is anonymous – please DO NOT include your name or that of your hospital or employer.

1. Age

- ❑ < 30
- ❑ 30–39
- ❑ 40–49
- ❑ 50–59
- ❑ > 59

2. Gender

- ❑ MALE
- ❑ FEMALE

3. Basic medical qualifications and year awarded.

4. If International Medical Graduate (Overseas trained doctor), have you completed all AMC requirements for full registration?

- ❑ YES
- ❑ NO

5. Relevant postgraduate qualifications/certificates in Emergency medicine or related areas

- ❑ FACEM
- ❑ FACRRM
- ❑ FRACGP
- ❑ EMST Cert
- ❑ ELS Cert
- ❑ APLS Cert
- ❑ Ultrasound cert
- ❑ Other……

6. Which best describes your current position in emergency medicine

- ❑ Staff Specialist
- ❑ Visiting Medical Officer
- ❑ Career Medical Officer
- ❑ Accredited Registrar
- ❑ Non-accredited registrar
- ❑ Resident Medical Officer/House Officer
- ❑ General Practitioner
- ❑ Medical Officer Special Scale (MOSS)
- ❑ Other…….

7. Do you work in this position
- ❑ Full time
- ❑ Part time
- ❑ Casual shifts only
- ❑ Call in roster only
- ❑ Locum
- ❑ Other……

8. Do you participate in any Maintenance of Professional Standards (MOPS) or CME program?

- ❑ ACEM
- ❑ ACRRM
- ❑ RACGP
- ❑ Other…….

9. Number of years experience in emergency medicine

- ❑ < 1 year
- ❑ 1 – 5 years
- ❑ 5 – 10 years
- ❑ > 10 years

10. Have you lived and worked in other rural/regional areas prior to coming to this position?

- ❑ Never
- ❑ Yes but not in Emergency medicine
- ❑ Yes but not my most recent position
- ❑ Yes, my last position also involved emergency medicine in a rural/regional area.

11. Estimate of proportion of professional time providing ‘hands on’ emergency medicine.

- ❑ 100 %
- ❑ 75 – 100%
- ❑ 50 – 75%
- ❑ 25 – 50%
- ❑ < 25%

13. What additional responsibilities do you have in addition to ‘hands on’ emergency medicine?

- ❑ On-call
- ❑ Weekend/out of hours roster
- ❑ Supervision of junior staff
- ❑ Undergraduate teaching
- ❑ Postgraduate teaching
- ❑ Pre-hospital/Retrievals
- ❑ Other hospital clinical work
- ❑ Anaesthetics
- ❑ Intensive Care
- ❑ Coronary Care
- ❑ Other…….
  - ❑ Administration
  - ❑ Staff recruitment
  - ❑ Private Practice
  - ❑ Other…….

14. Which of the following are the MOST IMPORTANT positive aspects of your current position?

- ❑ Remuneration/terms of employment
- ❑ Variety/casemix of clinical work
- ❑ Adrenaline ‘buzz’ of urgent treatment/interventions
- ❑ Colleagues/co-workers
- ❑ Recognition/respect in hospital and community
- ❑ Working environment
- ❑ General hospital resources
- ❑ Supportive administration
- ❑ Compatibility with other activities/family life
- ❑ Other……..

15. Which of the following are the MOST IMPORTANT negative aspects of your current position?

- ❑ Total work load
- ❑ Emotional health (stress)
- ❑ Remuneration/leave/professional development support
- ❑ Access block
- ❑ Hours of work/unsociable shifts
- ❑ Medical Staffing levels
- ❑ Nursing/support staff levels
- ❑ Risk of litigation
- ❑ Workplace violence
- ❑ Lack of peer support
- ❑ Lack of education
- ❑ Workplace conflict
- ❑ Administrative support
- ❑ Lack of recognition/respect in hospital and community
- ❑ Physical environment of ED
- ❑ Effect on family life
- ❑ Other…….

16. What do you anticipate are your future plans over next 5 years?

- ❑ Continue unchanged in current role
- ❑ Move to other hospital and/or practice
- ❑ Increase hours working in emergency medicine
- ❑ Decrease hours working in emergency medicine
- ❑ Retire or leave emergency medicine completely
- ❑ Work in other clinical areas
- ❑ Other…….

17. Are you planning, or do you wish to undertake any higher training in emergency medicine?

- ❑ None/unlikely
- ❑ FACEM
- ❑ Advanced skills year in emergency medicine (RACGP)
- ❑ FACRRM
- ❑ Further short courses (EMST, ELS, APLS, Ultrasound or similar)
- ❑ Postgraduate Diploma/Certificate in emergency medicine
- ❑ Research/higher degree
- ❑ Other……

18. Is there anything else you would like to add – in particular any deficiencies or strengths you see in the training of non-specialist emergency medicine doctors working in rural and regional areas of Australia?

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Thankyou for your assistance. Please return this survey in the attached envelope. Any queries about this survey, please contact Dr Peter Arvier at North West Regional Hospital, PO Box 258, Burnie, Tasmania 7320; telephone 03 64306633; email: peter.arvier@dhhs.tas.gov.au

Appendix E

PERSONAL ACCOUNT OF WORKING IN RURAL CANADA

Introduction

As part of sabbatical leave and leave without pay, the author had the opportunity to undertake a 12 month clinical attachment in emergency medicine/family medicine in Canada. This gave an opportunity to examine, by *participational observation* and direct involvement, the similarities and differences with practice in Australia. This process also gave the opportunity to triangulate the information obtained with that provided by other emergency physicians, other emergency departments and relevant Canadian organisations. These included:

- Canadian College of Family Physicians (Emergency Medicine training program)
- Canadian Association of Emergency Physicians
- Society of Rural Physicians of Canada
- Northern Medical Program at the University of Northern British Columbia, Prince George, Canada

Following an extensive search, mainly through internet resources, it was established that foreign medical graduates could obtain 12 months' temporary registration to work in areas of need in the province of British Columbia (BC). Most other provinces and territories required successful completion of the Canadian Medical Qualifying Examination before foreign medical graduates

can undertake any form of practice. In BC, these examinations were only required to extend registration beyond 12 months. Matching areas of need in BC to prospective doctors was co-ordinated by an agency, *Healthmatch BC,* contracted by the provincial government to undertake this process. There were numerous towns with shortages of medical practitioners. Many of these were smaller communities, often in remote northern parts of the province and regions with large indigenous First Nation populations. (The term 'First Nation' is used in preference to 'Native', 'Aboriginal' or 'Indian'). Following a number of telephone discussions, the city of Quesnel in central BC stood out and arrangements were made for the author to take up a position for up to 12 months in Family Practice/Emergency Medicine at the GR Baker Memorial Hospital. This hospital was chosen because its size and complexity of services were similar to many RRMA 3 and 4 hospitals in Australia.

Attractions of this post included the significant component of emergency medicine and the interface between family practitioners, hospital, specialists and regional services. Also of attraction were aspects of illness and injury not so commonly encountered in Australia.

Compared with Australia, the long cold winters with markedly reduced hours of sunshine bring an array of medical problems including pedestrian and motor vehicle accidents in icy conditions, hypothermia and cold induced injury, carbon monoxide toxicity due to unflued gas heaters and a variety of psychological problems attributed to 'Seasonal Affective Disorder'. The winter conditions also increase delays in travel for both elective and urgent

medical care – necessitating a broader range of skills for those medical practitioners working in isolated areas.

It took approximately 12 months to obtain the necessary documentation and submit this to the College of Physicians and Surgeons of British Columbia (CPSBC), and then obtain confirmation of eligibility from the Canadian Department of Immigration for a Work Permit. Great difficulty was encountered in obtaining acceptable and verifiable copies of all examination results and qualifications dating back over 25 years. The CPSBC required this in order to satisfy the registrar that training undertaken in Australia was of an equivalent standard to Canadian training as a Family Practitioner (FP). Final confirmation was not obtained until original documents were presented to the College Registrar at interview in Vancouver.

The City of Quesnel

This community has a population of approximately 15,000 within the town area and a further 10,000 in surrounding areas. The town is in a picturesque setting at the junction of the Fraser and Quesnel Rivers and located on major road and rail transportation corridors in central BC in the region known as Cariboo–Chilcotin. It is located approximately 700km northeast of Vancouver and was originally established as a port and trading post serving the gold rush to the Cariboo gold fields in the early 19th century. Like Australia, the rivers were the major transportation corridors before the arrival of the railways. Today, Quesnel exists as a centre for forestry operations with a number of pulp and timber processing mills being the major employers. The town is also

the regional service centre for provincial government departments and industry support services. Tourism is of increasing importance. A number of First Nation communities are in close proximity to the town.

The closest major town is Prince George, 120km north of Quesnel, and the regional referral hospital is located there. Prince George has a population of approximately 80,000 people and houses the main campus of the University of Northern British Columbia (UNBC) as well as the centre for the undergraduate Northern Medical Program. The city of Williams Lake with a similar population to Quesnel is approximately 110km south.

The City of Quesnel supports eleven Elementary Schools, two Secondary Schools and a campus of UNBC. There are numerous sporting and recreational clubs and a vibrant artistic scene. Those who live in Quesnel are passionate about their town and the opportunities available. There is a long-standing rivalry with the neighbouring towns of Prince George and Williams Lake. The waxing and waning fortunes of the local ice hockey team (the 'Millionaires') frequently dominate the local media. Like much of BC, the surrounding countryside is an area of stunning natural beauty with a myriad of rivers, lakes, mountains, hiking trails and ski fields.

Medical Services

Health services come under the umbrella of the Northern Health Authority which is centred on Prince George. The GR Baker Memorial Hospital (GRBMH) in Quesnel is a 60 bed general hospital providing acute medical,

surgical, maternity and psychiatric beds. There is a small five bed Intensive Care Unit which in reality is a High Dependency Unit with neither the staff nor resources to undertake the level of care found in the usual concept of an ICU. There is also a 30 bed slow stream rehabilitation unit attached to the hospital. The emergency department has about 15,000 attendances per year. Access block to inpatient beds is a frequent occurrence and at any one time 10-20% of acute beds are occupied by patients awaiting long term care. The prevailing view is that there are insufficient institutional beds for patients requiring long term nursing home care.

The hospital has in-house Medical Imaging and Laboratory facilities although more complex investigations are referred to Prince George. There is no bench top pathology accessible to medical and nursing staff other than basic urine dipstick testing and blood sugar estimations. After-hours testing for most investigations (including arterial blood gases) requires a technician to be called in. Most of the usual emergency laboratory tests are available although there are some limitations – most notably the restricted number of parameters available on the arterial blood gas analysis.

The Xray processing is a film-less system with immediate availability of images in electronic format also linked to private practice clinics. Similarly, pathology results are accessible through a dedicated web site. Ultrasound, including Doppler studies, is readily available in-hours but more difficult after-hours. There is no bedside ultrasound unit available for use by medical staff. There is no CT scanner in town and the logistics of transferring acute

patients to Prince George for this investigation can be time consuming and expensive. The local community is currently fundraising to purchase a CT scanner for the hospital as the BC government is not prepared to meet the whole cost of such equipment for small hospitals. Issues of staffing, equipment upgrades, and recurrent expenditure for such a facility have not received as much attention. MRI and nuclear medicine services are also located in Prince George. There is a substantial backlog in obtaining cardiac investigations such as stress testing, echocardiography and Holter monitoring – all of which require prior specialist consultation.

A province-wide pharmacy system ('Pharmacare') records all hospital and retail pharmacy dispensing, making 'doctor shopping' for drugs of abuse almost impossible (except for patients crossing the borders into Alberta or the USA). An instant printout of a patient's current prescriptions can be readily obtained, thereby removing the difficulty of identifying an acute patient's medication profile.

There are 21 general practitioners (also known as 'Family Physicians') in the town based in five separate clinics. Most of these GPs are male and a number only work part time. All these practitioners have admitting rights to the hospital and share in the roster for covering the emergency department. GPs provide all the obstetric care and anaesthetic services in the town. There are two general surgeons, two general physicians (internists), one ENT surgeon, and one GP psychiatrist. Most of the resident specialists are nearing retirement age. A number of specialists from larger centres provide a visiting consultation

service. Very few of the general or specialist practitioners are Canadian trained. South Africans represent the single largest group of Overseas Trained Doctors. These doctors often converse with their South African colleagues in Afrikaans causing some degree of irritation with other medical and nursing staff.

The local health authority pays relocation and incentive bonuses to OTDs taking up contracts to work in the area. There is also a separate on-call allowance and a 'Rural Retention Bonus' for doctors working in designated areas of need. Financial assistance is also provided for rural doctors to access medical education courses and other professional development. This generous remuneration has been in response to pressure from the relevant medical associations to make it more attractive for doctors to provide services in rural areas. The health authority argues that this has been a successful strategy resulting in very few gaps in GP services although obstetric services appear to be at risk as fewer GPs have the skills or inclination to take on maternity cases. There have also been frequent occasions in the past when absence or resignation of individual specialist staff has left the town totally dependent for some days on general practitioners for 'specialist' medical services. The health authority acknowledges the great difficulty in recruiting specialist staff and anecdotes suggest some of those previously recruited were unsuited to small hospital or rural practice. Burnout of specialist practitioners due to onerous on-call is a frequently raised concern.

Junior doctors undertaking Family Medicine training ('residency') rotate through the general practice clinics for three monthly terms. While these doctors report high levels of satisfaction with the training and social support they receive, very few ever return to practise in Quesnel although others have taken up positions elsewhere in rural BC. There are also nursing students attached to the UNBC who rotate to Quesnel. At the time of writing, the first Primary Care Nurse Practitioner students from UNBC have commenced training in Quesnel. Medical students from the UNBC based Northern Medical Program will also be coming to Quesnel in 2007. While the concept of training is generally well received, a commonly voiced concern is the ability to allocate sufficient mentor time for the training required at the expense of clinical responsibilities.

Patients requiring medical services not available locally are generally referred north to Prince George, although a long waiting time for appointments and elective surgery is often encountered due to the overall shortage of medical staff in the region. Patients requiring more complex investigation and treatment are generally transferred to the larger centres of Kamloops (350km south), Kelowna (450km southeast) or Vancouver (700km southwest). Occasionally, patients may be transferred to tertiary centres in Calgary or Edmonton (in neighbouring Alberta) when there are bed shortages in BC.

Emergency Medicine in Quesnel

The Emergency Department at GRBMH is small but reasonably well equipped and easily accessible to both ambulances and walking patients. The Medical

Imaging Department and operating theatres are immediately adjacent although lift access is required to the inpatient units. As previously mentioned, the emergency department is medically staffed by the local general practitioners on a city based roster. The GP anaesthetist on-call is also on 'second call' for the emergency department. There is varying enthusiasm by the local doctors to participate in the ED roster and some are clearly less comfortable than others in seeing acute patients even though the overall acuity is low. The vast majority of the 15,000 attendances would fall into Category 4 or 5 of the Australasian Triage Scale. Patients are not allocated a triage number as such, but the more casual subjective triage process used appears to work quite well with the small numbers and low acuity in an easily observed environment. Nursing staff will often initiate treatment and investigations on telephone advice from the doctors. During normal working hours, the GP is on-call and nursing staff in the ED triage the bulk of patients to the nominated family practice clinic if at all possible.

After-hours, the GP 'on-call' is generally 'on duty' in the hospital as the ED is the only option for patients seeking medical care outside normal clinic times. The cost for the vast majority of patient ED attendances is fully covered under the compulsory BC government 'Medical Services Plan'. As the doctors are paid generous fee-for-service and there is no cost to the patient, there is little incentive for either party to discourage after-hours low acuity visits to the ED. Many patients presenting to the ED after-hours are aware they have the 'right' to see a doctor although nursing staff are able to advise and encourage more appropriate use of medical staff time.

The standard of emergency care appeared to be at a different level to that of larger institutions. In part, this is due to the varying level of training and experience of the doctors on the ED roster, and also due to the lack of a Medical Director of the ED. This leads to some difficulty for the nursing staff as every individual doctor has slightly different approaches to investigation and management of medical problems. Some practices seem at odds with management in larger centres – for example, use of anti-emetics in children, the use of Ipecac for potentially toxic ingestions, the use of narcotics for exacerbations of chronic pain syndromes, the use of topical antibiotics for burns and minor wounds, the use of Sodium bicarbonate for acidotic states etc. While the ED has protocols for some urgent conditions, it is not clear how some of these were derived – for example, the protocol for Triage Category 1 asthma includes the use of IV Magnesium but omits any mention of IV Salbutamol or Adrenaline.

Like most rural hospitals, nursing staff at Quesnel are invariably enthusiastic, helpful and an invaluable source of knowledge on local practices and how to make the 'system' work. While there are nurses who regularly work ED shifts, the size of the hospital is such that all nursing staff are expected to be 'generalists' and may find themselves rostered to work in other areas of the hospital depending on patient load. Similarly, ward nurses may find themselves rostered to help out in the ED. The emergency department staff also have responsibility for patients in the Day Care area that administers chemotherapy, blood transfusions, IV antibiotics and other outpatient

procedures. Nursing staff undertake all clerical/reception duties in the emergency department as well as triage duties and ongoing care in the ED. Nurses are also able to carry out additional duties such as plaster cast removal and urinary catheter insertion that would often be the responsibility of other staff in larger institutions. As there are no wardsmen, porters, or attendants, the duties normally carried out by these workers usually fall to nursing staff, doctors, radiographers, relatives or whoever is available to provide assistance.

The level of documentation is less than would normally be the case in a larger institution and inpatient admission notes and medication prescription are fairly rudimentary. Nursing staff rely on standing orders and common sense for much routine patient care. A high level of trust and support between medical and nursing staff is evident.

The local ambulance service is part of the province-wide service and, while deemed ‘paramedic’ in North American terminology, provides a more basic service than the Australian concept of paramedic services. The higher levels of ambulance response are only found in major metropolitan centres with higher workloads. Like many rural towns, the volume of ambulance work in Quesnel is low and often of low acuity. To transport patients to the regional hospital at Prince George takes a crew and vehicle out of the town for a minimum of five hours and often longer depending on the nature of the case and the road conditions. Particularly during winter, ice, snow and fog can make driving conditions hazardous even on the main highway. Many minor roads are closed

for prolonged periods after heavy snowfalls. Large wildlife, especially moose and deer, add to night driving hazards.

There is no road based retrieval service from the regional hospital at Prince George necessitating a doctor from Quesnel to accompany a seriously unwell patient for a transfer there, further depleting the local medical resources. Many patients that would be a medical retrieval in larger centres are entrusted to ambulance officers or nursing staff for their transfer. Anecdotal evidence suggests that adverse events during transfer of these patients are extremely rare. Retrievals to tertiary hospitals are undertaken by helicopter or fixed wing aircraft with a helicopter landing site suitable for daylight operations in the GRBMH grounds. Weather conditions can significantly affect all aircraft operations.

Regional Services

As previously mentioned, the regional hospital is based in Prince George, 120km north of Quesnel. Highway 97 connecting these towns is a major transportation route from southern BC north to the Yukon and Alaska, and west to Alberta. Prince George is closer to the tertiary centre of Edmonton in Alberta than it is to Vancouver in southern BC. Although the hospital has recently had a major upgrading, the growth of the town has severely strained the capacity of the hospital to supply the services needed for the local population and surrounding districts. Availability of inpatient beds is a major issue for the Prince George hospital as it is throughout Canada. Frequent criticism is heard of inpatients discharged home earlier than desirable or

procedures done as day cases that would normally warrant an inpatient stay. (The author had personal experience of being discharged from the Day Surgery unit at 11.30 pm after urgent surgery for a sporting injury.) As a result of bed shortages, there is much criticism in the local popular press and medical media on the financial and other deficiencies of a severely strained hospital system. Despite this, there seems to be a universal view that the standard of care is as good as, if not superior to, the tertiary hospitals in the province. The community is fiercely supportive of the local facilities in much the same way that they view their ice hockey team as being the best in the province.

The Prince George hospital has the only emergency department in the town and sees approximately 35,000 patients per annum. ED staff estimate that the hospital has almost permanent Access Block. On Monday mornings, there can be up to 15 patients in the ED awaiting an inpatient bed. Additional stretcher bays have been created in the ED corridor to accommodate these patients. The staff have designated the ED corridor as a new ward named after the current Minister for Health. These difficulties have a flow-on effect to hospitals such as Quesnel where patients may also be occupying ED or inpatient beds for some days awaiting transfer to a scarce bed in Prince George.

ED medical staff feel their resources are stretched with insufficient staff numbers to cope with peak loads let alone any surge capacity. There is no capacity to spare staff for local retrievals despite the view that this should be part of the role for a regional ED. There is a perennial problem ensuring sufficient staff are available to cover rosters.

There are no specialist emergency physicians in Prince George. A number of the ED medical staff are EM certified family physicians – a group forming the bulk of the Canadian emergency physician work force. Local doctors expressed the view that places like Prince George are unattractive to specialist emergency physicians and that CCFP-EM physicians are likely to be the skilled workforce here for some time to come. Senior ED staff who were interviewed maintained that, from a service delivery point of view, there was no discernible difference between a specialist EM physician and a CCFP-EM certified physician. The senior ED staff are all teaching faculty for the CCFP-EM program and the UNBC undergraduate medical program.

Emergency medicine services elsewhere in BC

There is currently a shortage of emergency physicians in BC which is anticipated to grow from a shortfall of 72 to 196 within five years. The overcrowding and increasing pressures on BC's major hospitals' emergency departments frequently makes the front pages of the media. This was a major issue leading up to the recent provincial elections with promises of injection of funds to add additional acute and long term beds to relieve pressure on overworked emergency rooms. The major hospitals generally have a policy of not refusing a request for an urgent transfer from elsewhere in the province. In particular, the BC Children's Hospital will always accept an urgent case. A toll free telephone number to co-ordinate available beds in BC appears to work well and removes the frustration of remote practitioners having to 'ring around' to find a vacant bed.

Rural emergency medicine in other Canadian provinces

In rural Canada, fewer than 2% of emergency specialists live and work in rural towns. The Society of Rural Physicians reports an estimated current shortage of 1800 rural doctors. These shortages have a significant effect on the ability to provide emergency medicine services as family physicians provide the bulk of these services in smaller cities and towns. Very few specialist emergency physicians practise outside the metropolitan teaching hospitals. CCFP-EM certified family physicians are highly sought after for rural and regional hospitals, but most of these physicians do not practise family medicine and the majority are still more likely to work in larger regional and urban centres than rural areas. As previously mentioned, the 'poorer' Canadian provinces have a higher number of overseas trained doctors on conditional registration than wealthier provinces like Quebec and Ontario. The South African High Commissioner has appealed to Canada to stop recruiting health professionals from South Africa due to the pressure this was placing on his country's ability to reform its health system. South Africa has reportedly made a commitment not to recruit doctors from poorer African nations.

- Yukon, Nunavut and North West Territories

  These three territories in the far north of the country are geographically very isolated from the main population centres in the south with Inuit First Nations making up the bulk of the population. Many of the First Nations communities still have strong traditional cultural practices. The total population is quite small with the largest community being Whitehorse (the capital of Yukon) with approximately 25,000 people.

While there are links with southern universities, the territories are all too small to support any significant medical training and rely entirely on recruiting from elsewhere in Canada and overseas – a formidable task given the remoteness, extremes of climate and relative lack of 'city' attractions. There are few specialist services. Even with generous salaries and relocation allowances, the territory of Nunavut has chronic medical staffing shortages and relies on many short term placements to maintain services.

The entire territory of Nunavut has only 25,000 people – with about nine physician vacancies at the time of writing. There is reportedly a nursing vacancy rate of 48%. Transfer of patients to specialist centres is a frequent (and expensive) exercise and can present major difficulties with the geographical isolation and weather extremes. This can necessitate the management of complex patients for prolonged periods by family practitioners with limited skills – a further barrier to recruitment of doctors.

- Alberta

  Media reports from the rural city of Grande Prairie predict it will be facing a severe doctor shortage this summer with the prospect of 20 ED shifts unfilled in the hospital next month. Shortages also extend to internal medicine, mental health and family medicine. At least part of the problem appears to be the better conditions that doctors can obtain in other provinces. Hopes are pinned on recruiting from South Africa.

- Manitoba

  The hospital in Steinbach has been forced to close its ED on weekends due to a shortage of emergency medicine doctors. In commenting on such shortages, the Winnipeg Free Press notes that Manitoba has trained 48 emergency physicians but only two of them are practicing in rural areas. The Winnipeg Sun reports that the provincial government is offering substantial financial incentives for doctors to cover unfilled ED shifts and wants to increase the number of nurse practitioners to help fill gaps.

- New Brunswick

  Apart from the major hospital in Saint John, there are few emergency physicians working in other EDs in the province. The city of Moncton now relies entirely on family medicine practitioners to provide ED services in its hospital due to difficulty in recruiting and retaining suitably trained doctors.

- Ontario

  Two smaller communities are reporting difficulty maintaining ED services this summer mainly as a result of shortage of medical staff as well as an increased demand for their services with an influx of tourists and other visitors. The towns of Campbellford and Temiskaming report that there will be unfilled shifts in the ED or a need to reduce primary care services in order to maintain ED coverage.

- Saskatchewan

  The shortage of suitable medical practitioners in Saskatchewan has reportedly forced the closure of a number of small regional emergency departments. Recruitment difficulties have been exacerbated by OTDs unable to meet the provincial licensing requirements. 54% of Saskatchewan's doctors are now overseas trained with one third of those coming from South Africa.

The recent change of government in the Canadian elections with the Conservatives winning power has given some uncertainty to the future direction of health care. At the time of writing, there was much debate in the media on whether Canada would now move away from its traditional universal health care policy. Some observers predict a greater move towards private health care and contracting out services previously provided by government agencies.

Appendix F

SUGGESTED CURRICULUM CONTENT FOR A POSTGRADUATE QUALIFICATION IN RURAL EMERGENCY MEDICINE

The core knowledge and skills for an emergency medicine curriculum are well established. While it may be true that the rural doctor does not require the same degree of *detailed* emergency medicine knowledge as his or her teaching hospital colleague, there is a need to have a more *comprehensive* knowledge and skill base. This includes an awareness of the 'rural context' of other medical problems and where and how management of these conditions is provided and what degree of urgency is required. Emergency departments in smaller hospitals are invariably the 'Department of available care' and frequently have to provide services that do not easily fit into any other readily available discipline or service.

Rural doctors are often working in an institution that must take the entire range of human illness and injury without the luxury of being able to 'bypass' to another institution and without the availability of numerous on site subspecialties to provide ongoing investigation and treatment. Often, rural emergency physicians must provide ongoing management of complex medical problems while awaiting transfer or retrieval of patients to higher level care.

It is acknowledged that there is considerable overlap of all medical disciplines in the practice of emergency medicine and this list serves mainly to illustrate

the broad range of generalist knowledge and skills required in a rural context.

The content has been grouped into the major sub-headings:

- Major clinical problems
- Common emergency presentations
- General knowledge and non-clinical areas

1. Management of major clinical problems

1.1. Initial assessment and stabilization

Knowledge

- Principles of triage
- Resuscitation decisions
- Approach to the undifferentiated unconscious patient
- Approach to the undifferentiated sick child
- Approach to the multi trauma patient
- Principles of oxygenation
- Knowledge of secondary injury – renal failure, cardiac failure, ARDS, DIC, cerebral hypoxia, multisystem failure.

Skills

- Recognition of the seriously unwell patients
- Confident Basic Life Support
- Confident Primary Survey
- Confident Secondary survey
- Simulation lab scenarios for multi trauma management and complications

1.2. Airway emergencies

Knowledge

- Anatomical difficulties – adult, paediatric, congenital abnormalities.
- Difficult intubation decisions
  - Asthma
  - Burns
  - Facial trauma
  - Laryngeal trauma
  - C-spine trauma
  - Laryngeal oedema
  - Epiglottitis
  - Foreign bodies

Skills

- Recognition of the compromised/at risk airway
- Confident basic airway manœuvres
- Confident basic intubation
- Difficult intubation techniques – positioning, other laryngoscopes, bougies and introducers
- Identify failed intubation/rescue plans
- Alternative airway maintenance (laryngeal masks, needle cric, percutaneous cric, surgical cric)

1.3. Respiratory emergencies

Knowledge

- Principles of oxygenation
- Undifferentiated respiratory failure
- Pathophysiology of acute pulmonary oedema
- Pathophysiology of severe asthma
- Respiratory infections
- Chest trauma - blunt and penetrating
- Pathophysiology of near drowning
- Pulmonary aspiration

Skills

- Management severe asthma/COPD
- Ventilation techniques – manual and mechanical
- Non-invasive ventilation
- Use of portable ventilator
- Recognition of simple and tension pneumothoraces
- Insertion chest drains/needle thoracocentesis
- Interpretation of oximetry and capnography

1.4. Anaesthesia and analgesia

Knowledge

- Anaesthetic agents – induction, maintenance, neuromuscular blockers
- Complications of anaesthetic agents/procedures
- Complications of ventilation
- Difficult decisions – very young, very old, shocked, co-morbidities, burns
- Malignant hyperpyrexia
- Suxamethonium apnoea

Skills

- Rapid Sequence Induction
- Procedural sedation and monitoring
- Pre-intubation airway assessment
- Nerve blocks and other local/regional anaesthetic techniques

1.5. Circulatory emergencies

Knowledge

- Undiffentiated chest pain
- Acute coronary syndromes
- Cardiogenic shock
- Principles of thrombolysis, angioplasty and stenting
- Principles of cardiac pacing
- Hypertensive urgencies/emergencies
- Thrombo-embolic disorders

Skills

- ECG/rhythm interpretation
- Use of platelet inhibitors
- Use of anti-arrhythmics
- Thrombolytic therapy and complications
- ACLS algorithm
- Defibrillation and cardioversion
- External pacing
- Use of inotropes
- Use of hypotensive agents
- Central vein access
- Arterial line insertion
- Use of syringe drivers

1.6. Other causes of shock

Knowledge

- Undifferentiated hypovolemia
- Principles of blood transfusion/blood products/complications
- Occult blood loss in trauma
- Pulmonary embolus
- Tension pneumothorax
- Sepsis
- Anaphylaxis
- Spinal injury
- Gas embolus
- Cardiac tamponade

Skills

- Use of haemostatic agents
- Choice of resuscitation fluids – incl min volume resuscitation
- Difficult IV access – other sites, other techniques incl IO insertion and venous cutdown
- Rapid infusion techniques
- Stabilisation long bone and pelvic fractures
- Thrombolysis for PE
- Needle thoracocentesis
- Chemotherapeutics for undifferentiated sepsis
- Management anaphylaxis
- Pericardiocentesis

1.7. Neurological emergencies

Knowledge

- Neurological trauma and patterns of injury
- Patterns of cerebral ischaemia
- Space occupying lesions
- Intracranial heamorrhage
- Sub arachnoid haemorrhage
- Status epilepticus
- Acute confusional states
- Undifferentiated headache
- Guillian-Bare syndrome

Skills

- Assess and interpret adult and paediatric Glasgow Coma Scores
- Seizure control/monitoring
- Use of antiplatelat/anticoagulant/thrombolytic agents
- Swallowing assessment
- Hypertension control
- Lumbar puncture

1.8. Psychiatric emergencies

Knowledge

- Acute psychosis
- Post natal depression/psychosis
- Self harm/suicide
- Eating disorders

Skills

- Management acutely disturbed/intoxicated patients
- Assessment of suicide risk
- Legal requirements

2. Common emergency presentations

2.1. Musculo-skeletal emergencies

Knowledge

- Patterns of injury
- Compartment syndrome
- Ischaemic limbs
- Trauma mechanisms
- Spinal injury
- Acute back pain/sciatica
- Compound wounds
- Degloving injury

Skills

- Compartment pressure monitoring
- Reduction simple fractures/dislocations
- Reductions to minimize neurovascular compromise
- Splinting/casting techniques
- Repair simple tendon injuries
- Management amputated digits
- Stabilisation spinal injuries and associated immediate care
- Joint aspiration

2.2. Soft tissue emergencies and burns

Knowledge

- Crush injury/rhabdomyolysis/acidosis
- Thermal/chemical/electrical burns
- Frostbite
- Necrotising infections
- Bite wounds
- Neurovascular injury

Skills

- Wound care/burns management
- Pressure care
- Escharotomy/debridement
- Wound closure techniques

2.3. ENT, Dental and maxillofacial emergencies

Knowledge

- Patterns of injury
- Patterns of infection
- Congenital abnormalities

Skills

- Airway management
- Removal difficult foreign bodies
- Control of epistaxes
- Indirect laryngoscopy
- Dental anaesthesia
- Tooth preservation

2.4. Abdominal and genito-urinary emergencies

Knowledge

- Undifferentiated abdominal pain
- Undifferentiated testicular pain
- Undifferentiated pelvic pain
- Abdominal trauma – blunt and penetrating trauma
- Genital trauma
- Vascular emergencies – incl ischaemic bowel and leaking aortic aneurysm
- GI bleeding
- Ectopic pregnancy
- Ingestion corrosive substances/foreign bodies
- Bowel obstruction
- Obstructive nephropathy
- Urosepsis

Skills

- Removal GI foreign bodies
- FAST ultrasound
- Difficult urethral and suprapubic catheterization
- Reduction paraphimosis
- Control of haemorrhage in early pregnancy
- Control of oesophageal varices

2.5. Ophthalmological emergencies (incl ocular adnexae)

Knowledge

- Undifferentiated ocular pain
- Ocular trauma – blunt/penetrating/chemical/thermal
- Ocular infections – viral and bacterial
- Acute glaucoma
- Acute loss of vision

Skills

- Use of slit lamp/tonometry
- Assessment/removal difficult foreign bodies
- Repair peri-ocular lacerations

2.6. Metabolic and endocrine emergencies

Knowledge

- Diabetic emergencies and complications
- Acute renal failure
- Thyroid crisis
- Addisonian crisis
- Acid-Base balance

Skills

- Management of HONK, DKA
- Management hypoglycaemia
- Hyper/hypokalemia
- Hyper/hypocalcaemia
- Hyponatraemia

2.7. Dermatological emergencies

Knowledge

- Thermal regulation
- Skin infections/cellulitis/abscesses
- Desquamating conditions
- Herpes zoster
- Dermatological manifestation of systemic disease

Skills

- Management corrosive/chemical burns
- Drainage abscesses

2.8. Toxicology and toxinology

Knowledge

- Recreational drugs/substance abuse
- Polypharmacy overdose/delayed presentations
- Non-pharmaceutical poisons/toxins
- Antidotes
- Envenomation – marine, terrestial
- Poisonous plants

Skills

- GI decontamination
- Decontamination for CBR incidents (patients/staff/ED)
- Limb immobilization for envenomation
- Use of VDK and WBCT

2.9. Environmental emergencies

Knowledge

- Hypothermia, frostbite
- Hyperthermia
- Rhabdomyolysis
- Hyperbaric medicine
- Near drowning
- Electrical injury
- Smoke/gas inhalation

Skills

- Re-warming techniques
- Cooling techniques
- Temperature monitoring
- Initial management diving injuries

2.10. Infectious diseases

Knowledge

- Sexually transmitted diseases
- Meningitis
- Exotic diseases
- Nosocomial infections
- Principles of infection control
- Epidemiology

Skills

- Treatment/prophylaxis for contacts of infectious disease
- Management needle stick and other body fluid exposure

2.11. Sepsis

Knowledge

- Approach to sepsis of unknown source
- Chemotherapeutics for sepsis
- Neutropenic sepsis

Skills

- Shock resuscitation
- Lumbar puncture
- Specimen collection

2.12. Paediatric and neonatal emergencies

Knowledge

- Psychological needs of children and carers
- Anatomical and physiological differences
- Paediatric airway conditions incl croup and epiglottitis
- Sepsis in children incl meningitis
- Causes of seizures
- Patterns of trauma in children
- Non accidental injury incl legal requirements for reporting
- Specific gastrointestinal problems incl pyloric stenosis, intussuception
- SIDS
- Recognition common neonatal problems – prematurity, sepsis, respiratory failure, congenital problems

Skills

- Paediatric ALS algorithms
- Estimations and calculations incl use of Broselow tape
- Management of choking
- Management of stridor
- Airway management in children and neonates
- Pain management techniques

- Fluid management/hydration
- Management of DKA
- Management of seizures in children
- IV access techniques in children
- Neonatal resuscitation
- Umbilical vein catheterization
- Paediatric radiology
- Warming techniques in children and neonates
- Specimen collection incl bladder tap, LP, phlebotomy
- Procedural sedation

2.13. Obstetric, gynaecological and neonatal emergencies

Knowledge

- Bleeding in early pregnancy/miscarriage
- Ectopic pregancy
- Placental abruption
- Pre-eclapmsia
- Post partum problems – amniotic fluid embolus/uterine rupture/haemorrhage/sepsis/retained POC
- Trauma in pregnancy

Skills

- Management of hyperemesis
- Management of haemorrhage in early pregnancy
- Management precipitate delivery
- Interpretation of CTG
- Management hypertensive urgencies
- Seizure control in eclampsia
- Management shock

3. General knowledge and non-clinical areas

3.1. Forensic medicine and legal issues

Knowledge

- Non accidental injury and domestic violence
- Treatment of minors and persons in custody
- Consent
- Coronial investigations
- Limits of resuscitations/advance directives

Skills

- Sexual assault examination and specimen collection
- Giving evidence in court/medico-legal reports

3.2. Retrieval and special transport

Knowledge

- Pre-hospital response and management
- Principles of aeromedical transport

Skills

- ‘Packaging ‘ for safe transport
- Monitoring during transport
- Managing emergencies during transport
- Communications

3.3. Imaging and laboratory investigations

Knowledge

- Principles of imaging/radiography
- Use of contrast techniques
- Ultrasound, CT, MRI and Nuclear med techniques/limitations
- Arterial blood gas interpretation

Skills

- Xray interpretation
- Use of teleradiology
- FAST ultrasound
- Ultrasound in early pregnancy
- CT interpretation
- Clinical photography
- Point of care pathology

3.4. General topics

Knowledge

- Analgesia in the emergency department
- Complications of dialysis
- Complications of therapeutics
    - allergy/anaphylaxis
    - toxicity
    - Interactions
    - GI bleeding
    - Dystonic reactions
    - Neuroleptic malignant syndrome
    - Transfusion reactions
    - Over hydration
- Post procedural complications
    - thromboembolism
    - vascular insufficiency
    - infective
    - wound breakdown
    - perforation/obstruction
    - mechanical failure
    - pneumothorax
    - spinal headache
    - renal failure

Skills

- Emergency contraception
- Management post chemo emesis
- Management over anticoagulation

3.5. Emergency department organization, administration and general topics

Knowledge

- Electronic record systems
- Quality assurance and audit
- Cultural awareness
- Use of interpreter services
- Immunisations
- Organ donation and transplantation

Skills

- Multi casualty preparedness/response
- Trauma/priority team organization
- Telephone advice

- Pharmaceutical dispensing
- Dealing with distressed relatives/staff/CI debriefing
- Communication skills/dealing with complaints
- Working with police/other agencies
- Risk management/critical decision making/dealing with uncertainty
- Injury prevention
- Teaching techniques

Appendix G

ACEM ACCREDITED HOSPITALS

(Listing correct as at August 2005)

HOSPITAL	ROLE DELINEATION
Australian Capital Territory	
Calvary	Urban District
The Canberra	Major referral
New South Wales	
Auburn	Urban District
Bankstown-Lidcombe	Urban District
Blacktown	Urban District
Canterbury	Urban District
Coffs Harbour Base	Regional/Rural Base
Concord Repatriation General	Urban District
Dubbo Base	Regional/Rural Base
Gosford	Regional/Rural Base
Hornsby Ku-ring-gai	Urban District
John Hunter (Newcastle)	Major referral
Lismore Base	Regional/Rural Base
Liverpool	Major referral
Manly	Urban District
Mona Vale	Urban District
Mt Druitt	Urban District

Nepean	Major referral
Newastle Mater Misericordiae	Urban District
Orange Base	Regional/Rural Base
Prince of Wales (Sydney)	Major referral
Royal Prince Alfred (Sydney)	Major referral
Ryde	Urban District
St George (Sydney)	Major referral
St Vincents (Sydney)	Major referral
Sydney Childrens	Major referral
Tamworth Base	Regional/Rural Base
The Childrens (Westmead)	Major referral
The Maitland	Urban District
The Sutherland	Urban District
The Tweed	Regional/Rural Base
Wagga Wagga Base	Regional/Rural Base
Westmead	Major referral
Wollongong	Regional/Rural Base
Wyong	Urban District

Northern Territory

Alice Springs	Regional/Rural Base
Royal Darwin	Major referral

Queensland

Caboolture	Regional/Rural Base
Cairns Base	Regional/Rural Base
Gold Coast	Major referral
Ipswich	Urban District
Logan	Urban District
Mater Adult (Brisbane)	Urban District
Mater Childrens (Brisbane)	Major referral
Nambour General	Regional/Rural Base
Princess Alexandra	Major referral
Redcliffe	Urban District
Royal Brisbane	Major referral
Royal Childrens (Brisbane)	Major referral
The Townsville	Major referral
Toowoomba	Regional/Rural Base

South Australia

Flinders Medical Centre (Adelaide)	Major referral
Lyell McEwin (Adelaide)	Urban District
Royal Adelaide	Major referral
The Queen Elizabeth (Adelaide)	Urban District
Women’s and Children’s (Adelaide)	Major referral

Tasmania

Launceston General	Regional/Rural Base
North West Regional (Burnie)	Regional/Rural Base
Royal Hobart	Major referral

Victoria

Angliss (Melbourne)	Urban District
Austin and Repatriation (Melbourne)	Major referral
Ballarat	Regional/Rural Base
Bendigo	Regional/Rural Base
Box Hill	Urban District
Dandenong	Urban District
Epworth	Major referral
Frankston	Urban District
Geelong	Regional/Rural Base
Latrobe Regional	Regional/Rural Base
Maroondah	Urban District
Monash Medical Centre (Melbourne)	Major referral
Royal Children's (Melbourne)	Major referral
Sandringham	Urban District
St Vincent's (Melbourne)	Major referral
Sunshine	Urban District
The Alfred	Major referral
The Northern	Urban District
The Royal Melbourne	Major referral

Western	Urban District

Western Australia

Bunbury Regional	Regional/Rural Base
Fremantle	Major referral
Joondalup Health Campus	Urban District
Princess Margaret	Major referral
Rockingham-Kwinana	Urban District
Royal Perth	Major referral
Sir Charles Gairdner (Perth)	Major referral
Swan District	Urban District

Appendix H

List of abbreviations and acronyms used

A&E	Accident and Emergency
AAD	Australian Antarctic Division
ACEM	Australasian College for Emergency Medicine
ACEP	American College of Emergency Physicians
ACHS	Australian Council for Health Care Standards
ACRRM	Australian College of Rural and Remote Medicine
ADF	Australian Defence Forces
ADTOA	Australian Doctors Trained Overseas Association
AIHW	Australian Institute of Health and Welfare
AMA	Australian Medical Association
AMSA	Australian Medical Students' Association
AMC	Australian Medical Council
AMI	Acute Myocardial Infarction
ANZCA	Australian and New Zealand College of Anaesthetists
AMWAC	Australian Medical Workforce Advisory Committee
AMSA	Australian Medical Students Association
APLS	Advanced Paediatric Life Support Course
ARIA	Accessibility/Remoteness Index for Australia
ARRWAG	Australian Rural and Remote Workforce Agencies Group
ASCMO	Australasian Society of Career Medical Officers
ASEM	Australasian Society for Emergency Medicine
ASGC	Australian Standard Geographical Classification of Remoteness

BAEM	British Association for Emergency Medicine
BC	British Columbia
CAEP	Canadian Association of Emergency Physicians
CCFP	Canadian College of Family Physicians
CENA	College of Emergency Nurses of Australia
CEO	Chief Executive Officer
CME	Continuing Medical Education
CMO	Career Medical Officer
COAG	Council of Australian Governments
CPSBC	College of Physicians and Surgeons of British Columbia
CRANA	Council of Remote Area Nurses of Australia
CREM	Center of Rural Emergency Medicine
CT	Computerised Tomography
DMS	Director of Medical Services
ED	Emergency Department
ELS	Emergency Life Support Course
EM	Emergency Medicine
EMST	Early Management of Severe Trauma Course
ENP	Emergency Nurse Practitioner
ENT	Ear, Nose and Throat
EP	Emergency Physician

FACEM	Fellow of the Australasian College for Emergency Medicine
FACEP	Fellow of the American College of Emergency Physicians
FACRRM	Fellow of the Australian College of Rural and Remote Medicine
FRACGP	Fellow of the Royal Australian College of General Practitioners
FP	Family Physician or Family Practitioner
FRCPC	Fellow of the Royal College of Physicians of Canada
FTE	Full time equivalent
GP	General Practitioner
ICU	Intensive Care Unit
IMG	International Medical Graduate
JCU	James Cook University
JFICM	Joint Faculty of Intensive Care Medicine
MOPS	Maintenance of Professional Standards
MOSS	Medical Officer Special Scale
MRI	Magnetic Resonance Imaging
MSF	*Médecins Sans Frontières*
NP	Nurse Practitioner
NSW	New South Wales

OTD	Overseas Trained Doctor
PGY2	Postgraduate Year 2
PGY3	Postgraduate Year 3
PNG	Papua New Guinea
RACGP	Royal Australian College of General Practitioners
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
RACP	Royal Australian College of Physicians
RACS	Royal Australasian College of Surgeons
RDAA	Rural Doctors Association of Australia
RFDS	Royal Flying Doctor Service
RMO	Resident Medical Officer
RRMA	Rural, Remote and Metropolitan Area classification
RSTP	Rural Surgical Training Program
SMO	Salaried Medical Officer *or* Senior Medical Officer
SRPC	Society of Rural Physicians of Canada
STEMI	ST Elevation Myocardial Infarction
UK	United Kingdom
UNBC	University of Northern British Columbia
US	United States of America
VMO	Visiting Medical Officer

Appendix I

PRESENTATIONS OF THIS RESEARCH

July 2004	ACCRM Annual Scientific Meeting, Alice Springs NT
October 2004	Spencer Gulf Rural Clinical School, Whyalla SA
December 2004	Annual Meeting, Directors of Rural Clinical Schools, Burnie Tas
April 2005	ACEM/CENA Meeting, Bicheno, Tas
June 2006	ICEM meeting, Halifax NS, Canada
November 2006	ACRRM Annual Scientific Meeting, Adelaide SA
March 2007	Symposium on emergency medicine in rural Australia, Albury NSW

Appendix J

Tables of Data

Table numbers refer to the corresponding Figures in Chapter 4: Results and Discussion. Where appropriate, raw numbers were converted to percentages for the purpose of illustration in the Figures.

Table J.1 (Figure 4.1) **Advertised positions by minimum required years of experience (n = 51)**

Not specified	PGY 2[1]	PGY3[2]
28	8	15

[1] 2nd postgraduate year

[2] 3rd postgraduate year

Table J.2 (Figure 4.2) **Advertised positions by required registration (n = 51)**

Not specified	Full reg[1]	Eligible for reg[2]
25	5	21

[1] Need to be Australian or New Zealand graduate or have completed all AMC requirements

[2] Eligible for full, conditional, limited or temporary registration by the relevant Medical Board

Table J.3 (Figure 4.3) **Advertised positions by contact person (n = 51)**

ED Director[1]	DMS[2]	Admin[3]
13	23	15

[1]Includes any specified emergency medicine doctor

[2] Director of Medical Services (includes Acting, Assistant or Deputy)

[3] Includes CEO, Administrator, Director of Nursing or Human Resources contact

Table J.4 (Figure 4.4) **Age of respondents (n = 230)**

< 30 yrs	30 - 39 yrs	40 - 49 yrs	50 - 59 yrs	> 59 yrs
43	72	73	39	3

Table J.5 (Figure 4.5) **Female respondents by age (n = 57)**

< 30 yrs	30 - 39 yrs	40 - 49 yrs	50 - 59 yrs
21	17	12	7

Table J.6 (Figure 4.6) **Male respondents by age (n = 173)**

< 30 years	30 - 39 yrs	40 - 49 yrs	50 - 59 yrs	> 59 yrs
22	55	61	32	3

Table J.7 (Figure 4.7) **Respondents by Registration status[1] (n = 230)**

Aust/NZ trained	OTD (with AMC)[2]	OTD (no AMC)[3]	OTD (not stated)
128	61	39	2

[1] New Zealand graduates qualify for full registration in Australia

[2] Overseas trained doctors who have completed all Australian Medical Council (AMC) examination requirements and qualify for full registration

[3] Overseas trained doctors yet to complete AMC requirements but able to work under conditional or temporary registration

Table J.8 (Figure 4.8) **Respondents by postgraduate qualifications (n = 230)**

Fellowship[1]	Certificate[2]	Nil[3]
82	88	63

[1] Holding one or more relevant Fellowship qualifications (FACEM, FACEP, FACRRM or FRACGP), with most also holding additional certificates e.g. EMST, ELS, APLS

[2] Non-fellows but holding one or more relevant certificates e.g. EMST, ELS, APLS

[3] Non-fellows and no certificate

Table J.9 (Figure 4.9) **Relevant fellowships by type (n = 105)**[1]

FACEM[2]	FACRRM	FRACGP
13	34	58

[1] 61 respondents held a single fellowship, 18 held both FACRRM and FRACGP, two held both FACEM and FRACGP, one held all three fellowships

[2] Three respondents with FACEP were regarded as 'FACEM equivalent'

Table J.10 (Figure 4.10) **Relevant certificates by type (n = 323)**[1]

EMST	ELS	APLS	Ultrasound	Other[2]
114	74	84	23	28

[1] 50 respondents held one certificate, 53 held two, 37 held three, eight held 4 and three held more than 4 certificates

[2] Includes ATLS, ACLS, PHTLS, Burns, Dip Anaesthetics and NZ Diploma Community Emerg Med. Excludes Obstetric, Neonatal, Sports Science and unrecognised overseas certificates

Table J.11 (Figure 4.11) **Respondents by current position title (n = 219)**[1]

Staff specialist	VMO[2]	CMO	Accred reg[3]	Non-accred reg	RMO/HMO	GP	Other[4]
19	18	77	7	17	56	14	11

[1] Eleven doctors did not indicate current position

[2] Two of the Visiting Medical Officers held the FACEM

[3] Registrars enrolled in a College training program

[4] Titles such as 'Medical Officer Special Scale' (MOSS) and 'Senior Medical Officer' (SMO) were also used reflecting different terminology in different states.

Table J.12 (Figure 4.12) **Respondents by time worked (n = 227)**[1]

Full time	Part time	Casual[2]	Call in[3]	Locum[4]
78	56	34	39	20

[1] Three doctors did not specify work time

[2] Intended to identify doctors who worked irregular shifts depending on workload

[3] Intended to identify doctors whose worked in other areas and called to ED to see individual cases

[4] Locums may have been part time or full time

Table J.13 (Figure 4.13) **Male respondents by time worked (n = 168)**

Full time	Part time	Casual	Call in	Locum
54	43	27	28	16

Table J.14 (Figure 4.14) **Female respondents by time worked (n = 59)**

Full time	Part time	Casual	Call in	Locum
24	13	7	11	4

Table J.15 (Figure 4.15) **CME/MOPS participation by program (n = 249)[1]**

ACEM[2]	ACRRM	RACGP	Other[3]	None
21	25	76	9	118

[1]19 respondents participated in two or more formal MOPS programs

[2] Non FACEMs may enrol in ACEM MOPS if supervised by a FACEM

[3] Included ACEP, CAEP, RANZCOG and Joint College Programs

Table J.16 (Figure 4.16) **Respondents by years of emergency medicine experience (n = 221)[1]**

< 1 yr	1 - 5 yrs	5 - 10 yrs	> 10 yrs
24	80	55	62

[1] Nine doctors did not supply this information

Table J.17 (Figure 4.17) **Respondents by previous rural/regional experience (n = 220)**[1]

Never[2]	Yes – not emerg[3]	Yes – not recently[4]	Yes – last job[5]
53	37	41	89

[1] Ten doctors did not provide this information

[2] Respondents had never worked in rural/regional areas prior to current position

[3] Last position was in a rural/regional area but not in emergency medicine

[4] Previously worked in rural/regional area but not last position

[5] Last position involved emergency medicine in rural/regional area

Table J.18 (Figure 4.18) **Respondents by proportion of 'hands on' time in emergency medicine (n = 227)**[1]

100%	75-100%	50 - 75%	25 - 50%	< 25%
79	54	34	41	19

[1] Three doctors did not provide this information

Table J.19 (Figure 4.19) **Percentage of respondents by additional responsibilities**

On-call	shift work	Supervision[1]	UG teaching	PG teaching	retrievals
47%	62%	53%	36%	21%	16%
109	143	122	83	47	36

Anaes	ICU/CCU	Admin[2]	priv pract	Other[3]	Nil
12%	15%	31%	11%	7%	12%
27	35	69	26	15	27

[1] Supervision of junior medical staff

[2] Includes staff recruitment, budgets, rosters, committees

[3] Includes obstetrics, surgery, hyperbaric medicine, forensic medicine,

Table J.20 (Figure 4.20) **Percentage of respondents (n = 230) by positive aspects of current position**

Casemix	Colleagues	Pay and conditions	Work environ	Family/other[1]
74%	58%	45%	36%	33%
171	133	105	82	76

Adrenaline[2]	Respect[3]	Admin	Hosp resources	Nil
30%	20%	17%	16%	1%
70	46	38	36	2

[1]Compatibility with family and other outside activities

[2] The 'adrenaline buzz' of urgent treatment and interventions

[3]Respect in the hospital and community

[4] Two respondents stated there were no positive aspects to their current positions!

Table J.21 (Figure 4.21) **Percentage of respondents (n = 227) by negative aspects of current position**

Staff shortage	Work hours	Work load	Stress	Family	Education	Admin	Litigation	Pay[1]
34%	34%	33%	31%	26%	23%	22%	20%	20%
77	75	74	71	58	53	50	45	44

Access block	Work environ	Nursing support	Peer support	Lack respect	Violence	Work conflict	Other[2]	Nil
17%	13%	13%	12%	10%	10%	4%	6%	2%
38	30	30	26	22	22	9	14	4

[1] Includes leave, professional development support, other fringe benefits

[2] Included issues of lack of accreditation, travel to work, quality of staff, College disinterest

Table J.22 (Figure 4.22) **Percentage respondents (n = 216)[1] by future plans over the next five years**

No change	Move[2]	Decrease time[2]	Other clinical[2]	Retire	Increase time	Other/unsure[3]
33%	30%	19%	17%	8%	6%	5%
71	64	40	37	17	12	10

[1] Fourteen doctors did not provide this information

[2] 24 respondents (11%) indicated a combination of moving to another hospital and/or working less in emergency medicine and/or working in other clinical areas

[3] Included administration, research, moving overseas

Table J.23 (Figure 4.23) **Percentage respondents (n = 213)**[1] **by plans for future EM training**[2]

Short courses[3]	Dip/Cert EM[4]	GP skills term[5]	FACEM	FACRRM	Research	Other[6]	Nil
59%	20%	15%	12%	3%	2%	1%	22%
126	42	31	25	7	5	2	47

[1] 17 doctors did not provide this information

[2] 39 respondents (18%) indicated an intention to undertake two or more forms of education

[3] Includes EMST, ELS, APLS, Ultrasound etc

[4] No course generally available in Australia

[5] RACGP advanced skills year in Emergency Medicine

[6] Includes overseas sabbatical and teaching

Table J.24 (Figure 4.24) **Interviewees by country of current practice**[1] **(n = 53)**

Australia	NZ	Canada	USA
36	3	13	1

[1] 28 of the respondents (54%) had worked in other countries at some time prior to their current appointment.

Table J.25 (Figure 4.25) **Categories of persons interviewed by principal role (n = 53)**

Specialist[1]	Non-specialist[2]	FP/GP[3]	CMO[4]	Other clinical[5]	Admin[6]	Nurse
13	14	4	3	5	12	2

[1] FACEM or equivalent specialist qualification

[2] 'Emergency physician' with higher qualifications but no specialist recognition

[3] Family Physician or General Practitioner

[4] Career Medical Officer

[5] Includes doctors working for organisations such as AAD, RFDS or in other disciplines such as Intensive Care or Anaesthetics

[6] Includes educators and recruiters as well as administrators

Table J.26 (Figure 4.26) **Interviewees by preferred solution to address rural EM workforce shortages (n = 49)** [1]

More Specialists	More GPs [2]	More OTDs	Radical changes [3]
11	15	5	18

[1] Four of those interviewed did not express any preferred solution

[2] Practitioners who have obtained FRACGP, FACRRM or equivalent.

[3] Includes all those suggestions that are not encompassed by existing training schemes