INVESTIGATING STRATEGIES TO PREPARE EARLY POSTGRADUATE DOCTORS FOR PRACTICE IN RURAL AND REMOTE COMMUNITIES

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LIST OF ACRONYMS

ACRRM	Australian College of Rural and Remote Medicine
ALSO	Advanced Life Support in Obstetrics
AMC	Australian Medical Council Incorporated
APLS	Advanced Paediatric Life Support
ARP	Academic Rural Practitioner
CD	Compact Disk
CPMEC	Confederation of Postgraduate Medical Education Councils
DCT	Director of Clinical Training
ED	Emergency Department
ELS	Emergency Life Support
EMST	Early Management of Severe Trauma
HECS	Higher Education Contribution Scheme
HMO	House Medical Officer or junior doctor
JCU	James Cook University
JD	Junior Doctor
JFSS	John Flynn Scholarship Scheme
MA	Medical Administrator
MEO	Medical Education Officer
MSRPP	Medical Superintendent with Right to Private Practice
MTRP	Medical Training Review Panel
PGPPP	Postgraduate General Practice Placements Program
PGY1	Postgraduate year one or internship
PGY2	Postgraduate year two or junior house officer
PGY3	Postgraduate year three
PHTLS	Pre-Hospital Trauma Life Support
PMC	Postgraduate Medical Council
PMEFQ	Postgraduate Medical Education Foundation of Queensland
QHRSS	Queensland Health Rural Scholarship Scheme
QMEC	Queensland Medical Education Committee
QRMSA	Queensland Rural Medical Support Agency
RAMUS	Remote Area Medical Undergraduate Student
RFDS	Royal Flying Doctors Service
RP	Rural Practitioner
RRAPP	Rural and Remote Area Placement Program
RRMA	Rural, Remote, Metropolitan Area Classification System

SUMMARY

In Queensland, workforce shortages have resulted in early postgraduate doctors, or junior doctors, being required to work in rural and remote communities including in solo doctor practices. These junior doctors faced a range of barriers and difficulties. The workforce issues were unlikely to be solved in the short term. This situation prompted this research which investigated what strategies would prepare early postgraduate doctors effectively for practice in rural and remote communities.

The study was conducted in three phases. Phase one was exploratory and data collected were used to explore the issues that were impacting currently upon junior doctors practising in rural and remote practice. Core competencies and strategies through which to pursue these issues were also identified.

In phase two the *Supporting Junior Doctors Going Bush* Program was developed. The program aimed to assist junior doctors in their preparation for practice in rural and remote communities and to minimise the difficulties faced. Four strategies were devised. The strategies were to:

1. facilitate appropriate term allocations (where possible);
2. provide ongoing education activities;
3. promote attendance at courses; and
4. provide orientation for those undertaking rural practice.

Phase three was the trial of the program. Kirkpatrick's model was used to guide evaluation. Case study methodology was appropriate to investigate and evaluate the feasibility and impact of the program in four teaching hospitals. Two of these hospitals were located in rural areas, one in a remote area and one in a semi-metropolitan area.

The strategies were able to be implemented to a reasonable degree at the four sites. Process evaluation revealed that most aspects of the strategies were feasible. There were some barriers that influenced feasibility, in particular the

strategies focusing on education and course participation. The barriers were related to workforce issues. Lack of a full complement in staffing at the senior and junior levels impacted on the complete implementation. The orientation strategy was not well implemented in any of the three hospitals where junior doctors were required to undertake rural practice, although junior doctors reported they did not need any further orientation.

Junior doctors from the two rural hospitals and the remote hospital perceived they were prepared for practice in rural and remote communities. Fewer of the doctors in the semi-metropolitan facility felt confident. The strategy that was most effective in preparing junior doctors for rural and remote practice was exposure to a broad range of clinical experiences. These experiences were able to be facilitated best at the two rural hospitals. While junior doctors from one rural facility had been required to undertake rural practice in their second postgraduate year, doctors from the other had been able to spend this year solely on preparation for future practice. Participation in skills and procedural courses complemented clinical practice and enabled participants to gain hands on experience and practise procedural skills. Courses facilitated the improvement of participants' confidence and those addressing the development of emergency skills were noted as the most beneficial.

The *Supporting Junior Doctors Going Bush* Program raised the profile of rural practice and provided direction for hospital educators to assist their junior doctors with relevant preparatory activities. The program itself did not have any significant influence on rural recruitment or retention. However, rural experiences in the second postgraduate year were impacting on intentions to fulfill obligations of the rural scholarship scheme which was held by junior doctors in the study. The State Health Department, which is responsible for workforce training and retention, needs to ensure training is made a priority within hospitals and provide sufficient funding and resources to support activities. A model was outlined that could assist future junior doctors in their preparation. Any future rural programs need to be better promoted and resourced.

DECLARATION

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university;

and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

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CHAPTER 1: INTRODUCTION

1.1 THE RURAL AND REMOTE MEDICAL WORKFORCE

The medical workforce is pivotal to Australia's health care system. Good quality and accessible care for the whole community requires a medical workforce which matches population need. There should be enough doctors of the right kinds in the right places; the best expenditure of finite public resources, no unnecessary spending on inappropriate medical services or on medical education; and medical services which are safe, of high quality and culturally appropriate [1].

Recruiting and retaining a health workforce is now a serious issue in most countries around the world. Internationally, there is a shortage of medical practitioners and other health workers [2-3]. Similarly, in Australia there are inadequate levels of medical practitioners, particularly in rural and remote areas [4-7]. Australian medical graduates are well trained and highly sought after in the international market. Many are lured overseas where financial and educational benefits are more attractive than careers within the local public hospital systems [2].

Rural medical practitioners are generally required to take on much more responsibility than their metropolitan counterparts, particularly in the more remote areas [8-9]. The Australian College of Rural and Remote Medicine (ACRRM), the professional body for rural and remote medical practitioners in Australia, defines rural and remote medicine as 'a unique mode of practice' that requires 'an extended generalist doctor and encompasses a unique range of clinical roles and responsibilities' [8: 1]. The College distinguishes differences between urban and rural practice including isolation and independence, limited staff and resources, remoteness from specialists and specialty facilities, differences in patterns of health in rural communities and the unique socio-cultural environment of rural communities.

1.2 AUSTRALIAN MEDICAL TRAINING

Australian medical schools currently provide both undergraduate and graduate entry courses, ranging from four to six years in duration. Schools are accredited by the Australian Medical Council Incorporated (AMC) whose over-riding requirement is that medical practitioners are produced, who are safe and competent to practise as interns under supervision, and who possess an adequate knowledge and skills basis to undertake further vocational training [10].

The early postgraduate years are generally defined as being postgraduate year one (PGY1) or internship, and postgraduate year two (PGY2) or the junior house officer year. The terms medical or house officers, pre-vocational and junior doctors refer to the same group [11-12]. Doctors in their third postgraduate year (PGY3) and above who have not streamed into any vocational training programs are also classified as being in their pre-vocational years [12].

Vocational training is defined as medical training being undertaken in pursuit of a specific career option, either in general or specialist practice [13]. Training is determined by individual colleges and may involve basic and advanced terms. Basic training is considered as the initial two years after graduation from medical school, which is generally spent within the hospital system [11].

1.3 WORKFORCE INITIATIVES

In Queensland, two key initiatives being implemented to address workforce issues necessitate early postgraduate, or junior doctors practising in rural and remote communities. Queensland is the only state or territory in Australia that has a country relieving program, which requires early postgraduate doctors to provide backfill for practitioners located in rural and remote communities [14-15]. Junior doctors are required to provide relieving services for rural medical practitioners undertaking annual, conference or study leave [14]. These practitioners are located in towns and communities classified in categories four through to seven in the Rural, Remote, Metropolitan Area (RRMA)

Classification System [16]. Within this system, there are three groups – metropolitan areas (RRMA 1 and 2), rural centres (RRMA 3, 4 and 5) and remote zones (RRMA 6 and 7), and a total of seven categories. Locations are categorised according to population and remoteness. Table 1 outlines each category.

Table 1. RRMA classification system.

RRMA	**Description**
1	Capital City
2	Other Metropolitan Area; population ≥ 100,000
3	Large Rural Centre; population 25,000 – 99,999
4	Small Rural Centre; population 10,000 – 24,999
5	Other Rural Centre; population < 10,000
6	Remote Centre; population ≥ 5,000
7	Other Remote Area; population < 5,000

Source: Department of Primary Industries and Energy, Department of Human Services and Health. Rural, Remote and Metropolitan Areas Classification. 1991 Census Edition. Canberra: Australian Government Publishing Service; 1994.

The time spent in these posts varies from two to three days or weeks undertaking country relieving duties, to rural terms up to ten weeks, or extended placements, which may be a year or longer. These posts may be in single or multi-doctor facilities. The primary type of position that junior doctors fulfill is that of 'Medical Superintendent with Right to Private Practice' (MSRPP) [14]. An MSRPP is required to undertake duties which may involve public practice in a small rural hospital with the opportunity for private general practice. Duties include inpatient rounds, outpatient sessions and on-call services when not in attendance at the hospital [17].

The second key workforce initiative is the Queensland Health Rural Scholarship Scheme. The scheme was developed in the late 1990s to help fill vacant positions in rural hospitals. Through this scheme funding is provided to assist students in full-time study. In return, upon graduation these new health professionals are bonded for up to five years in rural health care facilities [18].

1.4 RECRUITMENT AND RETENTION STRATEGIES

Over the last few years several strategies and schemes have been introduced at the vocational, postgraduate and undergraduate levels in an attempt to attract medical practitioners into rural and remote practice.

1.4.1 Vocational Programs

Much political attention and funding has been focused on vocational programs to improve recruitment and retention in rural and remote areas [5]. Where difficulties have been experienced in recruiting Australian graduates, temporary resident doctors or international medical graduates, also known as overseas trained doctors, have been recruited and now comprise a significant proportion of the workforce particularly in these underserved areas, or 'Areas of Need' [19]. Queensland is no exception with the State Health Department recruiting temporary resident doctors and international medical graduates to practise in areas of need [20]. Rural and remote locations generally fall into this classification. Other countries also have similar programs to address their workforce shortages [21].

International medical graduates have also participated in the 'Doctors for the Bush' Program [22]. This program has been specially designed for practitioners who wish to settle in Queensland in the long term. Conditions apply, including the requirement to spend five years in a rural or remote practice. In return the practitioner receives sponsorship for permanent residency and can be granted a provider number to work anywhere in Australia.

The ACRRM was established in 1997 as an acknowledgement of the need to address the shortage of rural and remote doctors in Australia [8]. With rural and remote medicine emerging as a distinct discipline, there was an identified need for vocational preparation and continuing medical education programs. The College provides vocational training and a career pathway for those in rural and remote practice.

Other incentive schemes including the Remote Vocational Training Scheme have been initiated to provide additional funding and pathways to encourage doctors to practise in rural and remote Australia. The Remote Vocational Training Scheme was developed and trialed in 1999. A joint program of the Royal Australian College of General Practitioners (RACGP) and ACRRM, it aimed to provide an alternative training pathway, by way of remote supervision and distance education, for graduates who had already made a commitment to an isolated or remote community [23].

In addition to these targeted schemes, a number of vocational training colleges also require their trainees to undertake a segment of their training in rural areas.

1.4.2 Postgraduate Level Schemes

Other initiatives designed to address workforce shortages target early postgraduate doctors before longer-term career choices have been made. There are two main schemes that target early postgraduate doctors to encourage recruitment and retention in rural and remote areas. These are the Postgraduate General Practice Placement Program (PGPPP), which took over the Rural and Remote Area Placement Program (RRAPP), and the introduction of the Higher Education Contribution Scheme (HECS) Reimbursement. HECS was the fees system for undergraduate education.

1.4.2.1 PGPPP and RRAPP

In a recent initiative, the ACRRM received funding from the Commonwealth Department of Health and Ageing to expand on the Rural and Remote Area Placement Program by providing the Postgraduate General Practice Placement Program. The introduction of the RRAPP in 2002 made significant progress toward providing opportunities for early postgraduate doctors to experience rural general practice in a supportive environment [24]. The program, which provided up to 70 places nationally, contributed to filling the rural training gap, expanded knowledge about rural community practice, and assisted junior doctors in their decision-making about future training and careers [24].

Similar to the RRAPP, the PGPPP offers early postgraduate doctors the opportunity to undertake a rural term as part of their normal clinical rotations in postgraduate years one to three [25-26]. The PGPPP provides placements for 140 trainees nationally [26].

1.4.2.2 HECS Reimbursement

The Australian Government Department of Health and Ageing also offers doctors the opportunity to access a HECS reimbursement scheme. HECS is the scheme through which students make a financial contribution to pay for their tertiary studies. Under the reimbursement scheme, doctors can claim back one-fifth of their HECS costs for every year spent in rural or remote practices. These practices must be in RRMA three to seven areas. The aim of this scheme is to promote careers in rural areas and encourage long term retention [27].

1.4.3 Undergraduate Initiatives

Many initiatives at the undergraduate level are based on recommendations from the review undertaken by the Rural Undergraduate Steering Committee of the Department of Human Services and Health. Recommendations by the Committee included increasing core rural rotations and rural exposure, and recruiting students from rural backgrounds. A number of undergraduate scholarship schemes have also been offered including those funded through Queensland Health [18] and the Australian Government Department of Health and Ageing [27-29]. As a result there is an increasing number of medical students either having links to or being exposed to, rural and remote communities.

1.4.3.1 Recruitment and Rural Exposure

In 1994 the Rural Undergraduate Steering Committee recommended that medical schools should have some responsibility for developing the medical workforce to meet the needs of the 30% of the community that resides in rural and remote Australia [30]. Recommendations from this review included the need for medical schools to increase the numbers of students accepted from rural communities, and undertake the challenge of providing more rural

exposure throughout the undergraduate years. Long [31] suggested that medical schools must recognise that the shortage of rural practitioners is partly associated with lack of technical training for rural practice. While it was acknowledged that some medical schools provided rural rotations, it was argued that more universities must recognise the special technical needs of rural physicians [31].

More recently, some medical schools have decentralised training and are focusing on recruiting candidates from country areas [32]. The establishment of Rural Clinical Schools across Australia has aimed to facilitate opportunities for medical students to undertake at least half of their education in rural and remote locations. Within Queensland, the University of Queensland facilitates student placements across a network of hospitals, general practice surgeries and community medical centres in locations throughout the central and southern areas of the state [33]. Similarly medical students at James Cook University, located in Northern Queensland, have clinical exposure from the first year of the six-year undergraduate program. The final three years are extensively clinically-based with students attached to hospital and community practices throughout Northern Queensland [34].

There is evidence to support the notion that increasing rural exposure impacts positively on recruitment into rural careers [35-38]. Research has found that short rotations are likely to be less optimal than longer rotations, for meeting the broader goals of the Rural Clinical Schools to build future workforce capacity [39]. Students' emotional attachment to rural living comes from experience related to time and the connection to local people that comes as a result of time spent in communities. Students on short rotations do not make that local connection.

There is evidence in the literature that the recruitment of students with rural backgrounds and increasing exposure to rural communities, is more likely to produce graduates who will return to practise in rural communities [35, 40-44]. There was also evidence that the experiences gained by students in rural

environments is comparable, if not favourable with those received in urban settings [38].

1.4.3.2 Scholarships

There are four scholarship schemes available to medical students in Queensland, which aim to encourage careers in rural and remote practice. The Queensland Health Rural Scholarship Scheme (QHRSS) is offered by the State Health Department for health students [18]. The Remote Area Medical Undergraduate Student (RAMUS), the John Flynn Scholarship Scheme (JFSS) and the Bonded Medical Placements Scheme are all funded through the Australian Government Department of Health and Ageing [28-29, 45]. Conditions of the schemes vary, but generally require recipients to spend some time in rural communities either during or after their medical training.

1.5 IMPACT OF INITIATIVES

The impact of the initiatives targeting early postgraduate doctors presents a range of issues. An article in 'Doctor Q', a publication of the Australian Medical Association of Queensland, detailed feedback from two junior doctors who identified a number of barriers and issues relating to remote practice [15]. Before leaving for their placements there was a significant level of anxiety experienced and the doctors reported feeling much less prepared than they would have liked. They also felt isolated due to the large distances from major centres and rarely had any advice or assistance available on-site. Financial and indemnity concerns were also raised in the article.

Feedback presented to a meeting held as part of the 11th National Prevocational Medical Education Forum in 2006 highlighted that junior doctors in Queensland who were in their second postgraduate year were sent on rural placements in the first week of the training year [46]. The doctors were sent to solo-doctor practices which served populations of over 3000 people and the only support available to them was provided by telephone.

At the researcher's base hospital, junior doctors undertaking remote relieving rotations similarly reported feeling uncomfortable having to practise on their

own in isolated locations. Upon returning some reported positive aspects, however most had had to contend with more negative experiences. The primary issues were that the doctors had limited clinical experience and no on-site support or supervision. Junior doctors reported being extremely anxious about the possibility of an emergency or trauma presentation. When undertaking private general practice it was also reported that patients presenting at the clinic were often asked to come back when the regular doctor returned as the junior doctor had little or no experience in managing common general practice presentations. Presentations included managing high blood pressure or simple procedures such as excising an ingrown toenail.

Apart from undergraduate rotations as a student, many junior doctors have had little experience practising in rural towns or more remote communities. In addition they were required to work within systems with which they were not familiar, particularly when undertaking private general practice.

1.6 RESEARCH QUESTION AND OUTLINE

It is unlikely that workforce issues at the international, national or local levels are going to be resolved in the short term, despite the initiatives that have been implemented. Additionally, the requirement for junior doctors based in Queensland to participate in the country relieving program, and those in receipt of Rural Health Scholarships having to undertake compulsory time in rural and remote settings to fulfill their bonds, is going to continue to see inexperienced doctors being placed in rural and remote communities. Workforce recruitment strategies have not taken into account, the preparation and training requirements, which impact upon medical officers, in particular junior staff.

Strategies need to be implemented to prepare early postgraduate doctors, to be able cope in the difficult situations in which they sometimes find themselves. This research project was initiated to further explore the current issues and barriers impacting upon junior doctors and investigate strategies to minimise these.

The specific research question addressed in this study was:

> What strategies will prepare early postgraduate doctors effectively for practice in rural and remote communities?

The study followed a cohort of new medical graduates in Queensland, through their first two years of practice. In their second postgraduate year, the cohort was exposed to an intervention aimed at facilitating preparation for rural and remote practice. Case study design was used to investigate the research question and identify the characteristics of the most effective strategies. This thesis outlines the results of the study, which was conducted in three phases:

Phase 1. Defining the issues;

Phase 2. Developing an intervention to address the issues; and

Phase 3. Investigating the intervention.

Chapter 2 provides an overview of the literature surrounding this subject. The third chapter describes the methodology used to investigate the question, which included a combination of qualitative and quantitative data. The results of the first phase are presented in Chapter 4. The intervention devised in phase two is outlined in Chapter 5. Chapters 6 through 8 detail the results of the third phase, the trial and evaluation of the intervention. The results are discussed in context of the literature in Chapter 9 and the final chapter concludes the study. The data collection tools used in this research project, are attached in the appendices.

CHAPTER 2: LITERATURE REVIEW

2.1 DEFINING THE ISSUES

A comprehensive literature review was undertaken to investigate the issues surrounding the preparation of early postgraduate medical officers for practice in rural and remote communities.

2.1.1 Preparation of Junior Doctors

Unlike graduates in North America and elsewhere, Australian medical graduates have one year of internship and usually at least another year of generalist experience before they join a vocational training program [47-48]. It is during this time that junior doctors in Queensland are recruited to participate in the country relieving program and those in receipt of bonded scholarships may be sent to rural and remote communities. Hence, many of the issues being addressed in this study are uniquely Australian.

2.1.2 Experiences of Junior Doctors in Rural & Remote Practice

In the early 1980s, an Australian study reported that undergraduate and hospital-based training did not consider the needs of rural practice. The authors proposed that teachers did not understand the practicalities and differences between city and country practice. Practice between rural locations differed due to variations in disease patterns, facilities for diagnosis and treatment and the limited support available from peers [49]. The authors discussed the competencies required by rural doctors. These competencies were divided into two general categories: personal attitudes and medical content. Table 2 outlines the broad competencies.

Recommendations from this study targeting interns were that hospital-based general practice oriented teaching should be provided, posts for resident medical officers should be in suburban or provincial hospitals where common medical and surgical problems are managed, and that junior doctors should be encouraged to expand their practical and procedural skills. It was recognised

that some procedural aspects were available through postgraduate specialist colleges but personal development and preparation was overlooked [49].

Table 2. Competencies required by rural doctors.

Personal Attitudes	**Medical Content**
1. Recognition of vocational identity 2. Self awareness and confidence in his or her own ability 3. Protection of personal integrity and prevention of intellectual isolation 4. The capacity to realise personal short comings 5. The ability to work under both physical and emotional stress	1. Problem-solving ability 2. Intervention measures, including procedural work 3. Discrimination in judgment 4. Selectivity in the use of available diagnostic and allied health assistance 5. Techniques in communication, transport and patient evacuation.

Source: Harvey BC, Linn JT, Saville GG. A training programme for rural general practitioners in Australia. Medical Journal of Australia. 1980 Nov 29;2(11):597-600.

Hickner (1991) investigated how Australian Medical Schools and the Family Medicine Programme, the training scheme for general practice at the time, had responded to recommendations from Harvey, Linn et al (1980) and from other studies done previously. He concluded that, while there were a number of innovative programs in the United States, the situation in Australia was different enough that unique solutions for rural practice training were required. Attention to recruiting qualified candidates from the country into medical schools, decentralization, development of high quality rural hospital training posts, and overcoming the psychological barriers students have towards rural practice were expected to make an impact [50].

In the early 1990s another study identified a number of issues and barriers impacting on a relieving doctor's ability to adequately perform his or her duties. His study was designed to gain information from doctors who

graduated in 1983 and had spent five years in practice. He investigated the appropriateness of medical school and early hospital training in preparation for clinical practice, focusing on relieving experiences [51]. The study found that many graduates were relieving for long periods, unsupervised, were inexperienced and lacked the essential skills. Relieving secondments were interrupting supervision and support during early postgraduate training. Recommendations from this study included pre-arranged formal supervision for inexperienced staff, linking with general practitioners for advice and assistance in small towns and with more experienced staff for relief in isolated areas, lengthier under- and post-graduate terms, a more practical approach to clinical training, and primary care training and rural practice to be addressed through the whole continuum of undergraduate and postgraduate clinical training [51].

However, despite these issues brought to attention over the last couple of decades, early postgraduate, or junior doctors, are still required to practise in rural and remote communities without adequate preparation and support, and continue to face numerous issues and difficulties.

2.1.3 Required Preparation for Junior Doctors

High quality medical education has been argued to be central to high quality medical care [52-54]. The process of education from medical school to retirement should be a continuous one [54-56]. Three phases have been recognised: undergraduate, postgraduate training and continuing medical education. Postgraduate training has been defined as the period of training and supervised clinical experience leading to the achievement of specialist status [56]. It is argued that greater emphasis should be placed on continuing nature of education with the goal being unification of methods in the three phases [52-56].

More recently the continuum has been broken down into four levels: student or undergraduate, pre-vocational, vocational training and continuing education [52]. This breakdown reflects the structure of the Australian medical system.

Currently the links between prevocational and vocational training are not well developed [57]. There is a strong need for a more coordinated approach to medical education in Australia [58].

In their intern year, all Queensland medical graduates undertake a set clinical program, including terms in medicine, surgery and emergency medicine which is supplemented by a formal education and training program [59]. The aim of these programs is to allow interns to gain the skills and knowledge in clinical medical practice necessary to work competently and safely in the medical profession [60].

More recently there has been a movement away from the requirement of undertaking particular terms towards the attainment of core competencies [46, 61]. Hence, recent research in Australia has aimed to identify core competencies for early postgraduate doctors, including those in the first postgraduate year or internship [62-65]. These activities aim to ensure junior doctors possess a basic set of clinical skills before registration. Table 3 outlines the set of modules addressing identified core competencies for interns, proposed by the Postgraduate Medical Education Foundation of Queensland (PMEFQ), now known as the Postgraduate Medical Education Council of Queensland (PMCQ) [65].

Table 3. PMEFQ modules developed to address core competencies.

Modules for interns (PGY1)	
Suturing simple procedures	Urology - catheterisation
Haemorrhage control	Fracture management, plastering
Local anaesthesia	Vaginal examination
Joints – sprains and strains	Anaphylaxis
Wound management	Gastroenterology
Manage acute eye problems	

Source: Postgraduate Medical Education Foundation of Queensland. Core Competency Modules. ME / DCT Meeting 9-10 September 2004; 2004b September; Brisbane: Postgraduate Medical Education Foundation of Queensland; 2004b.

In October 2006, the Confederation of Postgraduate Medical Education Councils (CPMEC) released an Australian Curriculum Framework for Junior Doctors [66-67]. This document aimed to provide a bridge between undergraduate curricula and the curricula that underpin vocational college training programs. It outlined the knowledge, skills and behaviours required of prevocational doctors in order to work safely in Australian hospitals and other healthcare settings. As such, it provides junior doctors with an educational template that clearly identifies what is required for successful internship.

The CPMEC steering group will oversee the implementation and further development of the curriculum framework, including identification of learning resources and consideration of issues relating to assessment [67].

2.1.4 A Gap in Support

Various initiatives have been implemented at the undergraduate level to increase students being exposed to rural practice. A number of scholarship schemes have been provided [18, 28-29]. Medical schools have undertaken the challenge of providing more rural exposure throughout the undergraduate years [30]. Additionally, medical students are supported by clinical supervisors and student liaison officers who plan and oversee their placements, and provide ongoing education, clinical and personal support via teleconferences.

Work has also been done at the vocational training level to identify necessary procedural skills for rural practice [8, 68], however, the appropriateness of this work for those at the early postgraduate level and feasibility of implementing such curricula in the hospital setting has not been investigated.

Trainees at the vocational level are able to gain a significant amount of experience and, through their training college, have access to professional support, education, resources and defined career paths. The establishment of the Australian College of Rural and Remote Medicine has facilitated the development of a vocational training pathway and ongoing professional development for rural practitioners [69].

Although initiatives have been introduced at the undergraduate and vocational levels, in the early postgraduate years exposure to rural practice appears to be very limited. These years are primarily spent in hospital settings. While the development of the Australian Curriculum Framework for Junior Doctors will provide guidance for medical educators and junior doctors to work toward obtaining essential skills and knowledge, at present there appears to be little scope for integrating factors that influence practice in rural and remote communities.

There are few studies which investigate how junior doctors perceive their preparation for practice. An Irish study undertaken early this century found that 91% (n=69) of respondents considered that they were not prepared for all the skills and competencies needed as an intern [70]. An Australian study of prevocational doctors undertaken in 2003-2004, found that 64% (n=299) of respondents in general, felt well or very well prepared for their prevocational role [71]. Perceived preparedness increased marginally in each postgraduate year 55% (n=120) in PGY1, 72% (n=88) in PGY2 and 87% (n=49) in PGY3. In the same study only 31% (n=146) of respondents felt prepared for dealing with clinical emergencies and 45% (n=213) for performing procedures. More recently, a report of Junior Medical Officer Forums in 2006 stated that junior doctors felt unprepared for the work required of them in their first years after graduation [46].

There is little activity focused on preparing and supporting junior doctors who have not joined a vocational program for rural practice. In the hospital setting, where the majority of training takes place, the context of rural practice receives limited attention during internship and postgraduate year two and above [72]. This is a major issue, particularly for those junior doctors who are required to undertake country relieving or hold rural scholarships and are bonded to rural or remote practice for several years after internship [18]. At the Inaugural Scientific Forum of the Australian College of Rural and Remote Medicine held in 2001, one speaker proposed the development of a minimum training requirements for junior doctors preparing for rural practice, to be delivered to all scholarship holders in their early postgraduate years [73].

2.2 ADDRESSING THE ISSUES - CURRENT INITIATIVES

A number of initiatives have been proposed to assist junior doctors with their preparation for rural practice. These include recommendations by the Medical Training Review Panel (MTRP), the establishment of the Confederation of Postgraduate Medical Education Councils and Postgraduate Medical Councils (PMCs) in the states and territories, implementation of hospital-based education and training programs, the introduction of the rural placement programs and rural preparatory programs, and the development of other curricula and frameworks.

2.2.1 MTRP Recommendations

The Medical Training Review Panel was established in 1997 by the then Australian Minister for Health and Family Services [11]. The panel addressed concerns of House Medical Officers (HMOs), another term for junior or early postgraduate doctors, and others involved in the medical community. It reviewed the training needs and career structures for HMOs and proposed appropriate training and improved pathways. The Panel noted that a major effect of the Health Insurance Amendment Act No 2 1996 was that nearly all recent graduates would spend at least three years in the public hospital system [11].

The Hospital Medical Officer Working Group was established as a sub-group of the panel to develop and recommend proposals for a National Training Model for HMOs [11]. The group recommended that there be an endorsement at the national level for the treatment of the first two postgraduate years (intern and PGY2) as an integral period of generalist training [11, 74]. Another recommendation was that all postgraduate medical officer training should include at least one rural term in a hospital or general practice setting, and one community-based term either in general practice or a community health service [11, 75-77]. In such terms, a balance between service and training should be maintained and levels of supervision and education opportunities clearly articulated [11, 76, 78].

2.2.2 Initiatives of Postgraduate Medical Councils

The Confederation of Postgraduate Medical Education Councils (CPMEC) was established to develop, monitor and evaluate the education and training of junior doctors from a national perspective, assist in the implementation of the Medical Training Review Panel initiatives and provide opportunities for sharing experiences and ideas. In 1997/98 the Commonwealth Government offered funding to all State and Territory Governments to establish or enhance activities to support and develop junior doctor training.

To support the states and territories, an advisory committee was set up in 2001 under the auspices of the CPMEC, to review and update the National Guidelines for the Training and Assessment of Junior Doctors. The guidelines provided a framework for informing processes and for identifying gaps in specific goals and objectives of the prevocational years [79].

Additional funding was made available to selected Postgraduate Medical Councils to take a lead role in developing a number of national projects including the development of curricula and assessment tools [75]. The Queensland Medical Education Committee which subsequently became the Postgraduate Medical Education Council of Queensland (PMCQ) developed discipline specific curriculum frameworks to facilitate general clinical education programs for early postgraduate doctors. The aim was to provide a model for practice which could be implemented at state and national levels to provide a seamless integration with undergraduate and vocational education and training.

Initially curriculum frameworks were developed for medicine, surgery, paediatrics and anaesthesia [80]. Additional frameworks were also developed including obstetrics and gynaecology, emergency medicine, mental health, and a number of sub-specialties. A broad range of suggestions for rural programs was also made [81]. As discussed above, the CPMEC has now released an Australian Curriculum Framework for Junior Doctors which provides the essential knowledge and skills for the junior doctor years [66].

Other resources developed included guidelines for accreditation and training for the intern year, benchmarked skills lists and training guidelines for both the first and second postgraduate years, training workshops for Directors of Clinical Training and a variety of support documents and teaching tools [80].

More recently Postgraduate Medical Councils have also facilitated the development of a range of other tools to support education and training. These include assessment tools, training portfolios, learning needs tools, modules for professional development and train-the-trainer programs [57, 82-83].

2.2.3 Hospital-Based Education and Training

It was deemed essential that clinical education and training programs offered in the early postgraduate years consolidate general skills of medical practice in preparation for future training [48, 70, 74]. The 'Accreditation Standards for Junior Doctor Education' initially developed by the Postgraduate Medical Education Foundation of Queensland, state that education and training should be provided for interns, postgraduate year two doctors and those in postgraduate year three and above who have not enrolled in any vocational training programs [59]. In line with these accreditation requirements, the existing structures for supporting junior doctors within the hospital setting, comprise orientation and a formal education program [59]. These activities could assist junior doctors in their preparation for rural practice if they were extended beyond required clinical knowledge and skills, to include other factors that influence practice in rural and remote communities.

2.2.4 Placement Programs

In response to the MTRP recommendations, rural placement programs have been developed to enable junior doctors to be exposed to rural and general practice. Initial trial rotations were undertaken in South Australia and Western Australia [84]. The South Australian program provided interns with a well-supervised rural rotation to small rural communities located outside of Adelaide [72, 85].

The introduction of the Rural and Remote Area Placement Program (RRAPP) in 2000 and more recently the Postgraduate General Practice Placements Program (PGPPP), both administered through ACRRM, has made significant progress towards providing opportunities for early postgraduate doctors to experience rural general practice in a supportive environment [24]. The RRAPP facilitated a rural community practice training term for junior doctors to increase the opportunities for them to experience training outside the hospital setting. The program provided up to 70 places nationally. The PGPPP which has built upon the RRAPP, similarly offers doctors in their first to third postgraduate years the opportunity to gain exposure to rural and remote practice through 140 training placements across Australia [26].

2.2.5 Rural Preparatory Program

The Queensland Rural Medical Support Agency (QRMSA), now known as Health Workforce Queensland, developed a rural practice preparation workshop targeting junior doctors who would be required to undertake country relieving. The workshops were developed as a project funded by Queensland Health, and aimed to provide junior doctors with an opportunity to reaffirm their competence, capacity and confidence to manage acute emergency situations and the general practice aspects of their rural placements [86]. The resulting rural preparatory program was provided several times per year as a two day workshop.

2.2.6 Other Curricula and Programs

Other curricula and programs were investigated for their appropriateness for junior doctors preparing for rural practice and their ability to be delivered within a hospital setting. Several curricula were identified, that outlined important details for either early postgraduate education or issues relating to rural or remote practice. A review of the curricula is summarised in Table 4.

Table 4. Review of curricula preparing junior doctors for rural practice

Document	**Comments**
General Medical Training Program - Toowoomba Base Hospital (Shelton, 1996) [87]	Focuses on junior doctor education, specific knowledge and skills, incorporates some rural issues, not relevant to other rural areas
Australian College of Rural and Remote Medicine's Primary Curriculum Second Edition (ACRRM, 2002) [8]	Focuses on vocational training in rural and remote medicine, does not target early postgraduate doctors
Royal Australian College of General Practitioner's Training Program Curriculum (RACGP, 1999) [88]	Focuses on vocational training in general practice, includes rural stream, not specific program for early postgraduate doctors
Report of the Population Health Education for Clinicians Project (Grant, 1999) [89]	Focuses on integrating population health into general practice, vocational training, does not focus at early postgraduate doctor level

Smith (2004) developed the 'Rural Practice Curriculum for Junior Doctors: A Framework,' by integrating relevant components of a number of existing curricula and frameworks [90]. The framework consisted of seven domains and eleven disciplines (see Figure 1). The domains in the framework were:

1. Core clinical knowledge and skills
2. Communication skills and relationships
3. Ethics, legal and organisational issues
4. Population health
5. Rural and remote context
6. Indigenous health
7. Emergency care

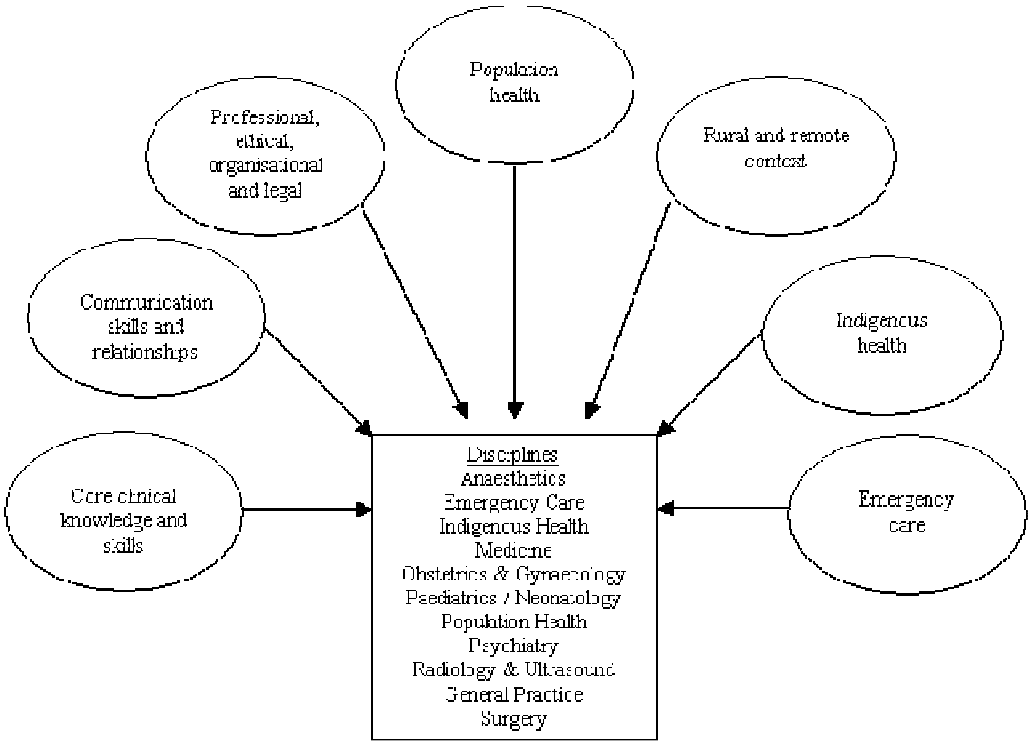

Figure 1. Rural practice curriculum for junior doctors: A framework [90].

The framework was designed to allow education providers to tailor their own programs to regional priorities and health issues and better reflect the characteristics of the local communities.

2.3 SUCCESSES AND FAILURES OF CURRENT INITIATIVES

A study comparing the Australian medical education system with that of the United Kingdom and Canada found that the strengths of the overseas systems were in areas where the current Australian system was weak. The strengths were that there was clarity in terms of the curricula, and there was infrastructure in place to support implementation [48]. Paltridge (2006) reported that in Australia there was a need for a national curriculum which was accredited by the PMCs. In addition, funding was required to enable adequate supervision, and a national medical education body to be established to facilitate communication, integration, resources and support [48, 91].

2.3.1 MTRP Recommendations

The recommendations made by the MTRP have at this stage, been implemented by a number of organisations0. The CPMEC and PMCs have

supported the roll-out of new posts in rural and general practice settings through the accreditation and evaluation of these [57, 84].

The expansion of medical education being delivered to interns through placements in rural and remote Australia has been successful with students commenting positively about the clinical content of learning and personal attention received from clinical staff [92]. Links between intern training and general practice have been well established in many places.

However, with the increasing number of medical schools and medical graduates expected over the next decade [93], increasing pressure will be placed on health systems to provide early postgraduate training. There is an urgent need for PMCs, State Health Departments, the Commonwealth Government and medical boards to develop new placements within the public system and other settings to accommodate these new graduates [94]. This may indirectly influence the implementation of the MTRP recommendations.

2.3.2 Postgraduate Medical Councils Initiatives

The National Training and Assessment Guidelines for Junior Medical Doctors developed in 2003 were shown to have limitations in that they were not linked to an agreed national curriculum [48]. The recent release of the Australian Curriculum Framework for Junior Doctors is a move towards providing national guidance for prevocational medical training as it sets out the core knowledge, skills and attitudes required of early postgraduate or junior doctors [54, 57, 66].

The document does have some limitations. While the identification of core content is a start other components which constitute the essential elements of a curriculum have not yet been considered. Aims and objectives relating to the content, teaching and learning strategies, an assessment program and processes for monitoring outcomes are required [95]. The assessment system needs to be effective, feasible and valid [92]. The long term success of the curriculum framework may depend on how conscientiously and effectively it is implemented and appropriate resources provided [53].

2.3.3 Hospital-Based Education and Training

It has been claimed that education and training for junior doctors in Australia does not have an appropriate level of resource support [46, 57, 96]. Directors of Clinical Training and Medical Education Officers (MEOs) do not receive financial support directly to deliver training. In addition, access to simulation centres and skills laboratories is generally inadequate [71]. Workforce shortages have limited the ability of junior doctors to be released to participate in activities. Gleason, Daly et al (2007) reported that allocated formal teaching time in the hospital setting was only one hour per week. Service demands resulted in junior doctors being too busy to attend formal teaching and there was much variability in the quality of teaching and relevance of topics [53]. In addition the provision of supervision, training of supervisors and definitions of roles are underdeveloped [95]. Clinicians need to be trained to facilitate learning and give feedback [96].

There are few Australian studies assessing prevocational doctors' perceptions of the teaching and learning methods within their hospitals. In one major study there was strong support for dissemination of professional development programs such as 'Teaching on the Run'. Teaching and learning strategies that were highly regarded by respondents were registrar and consultant teaching, college tutorials, clinical skills teaching in particular high-fidelity simulation, and instruction in teaching skills [71]. Clinical simulators have now become established as an accepted teaching tool and are considered a powerful learning aid [9]. They allow psychomotor and clinical reasoning skills to be developed in a realistic environment, while remaining risk free to patients.

However, Wong (2006) stated that vocational training registrars should not be expected to provide increasing amounts of teaching for junior doctors as they too were in a predominantly learning position. It has been argued that expansion of the workforce in addition to the allocation of protected time for teaching and adequate remuneration would facilitate learning at not only the prevocational level but also at registrar level [97].

Teaching and learning strategies that have become unpopular include grand rounds, unit meetings, computer programs and videoconferencing [71]. A study from the United States found that medical grand rounds had shifted from being patient-focused conferences to a lecture series with little clinical relevance [98]. Hebert and Wright (2003) concluded that grand rounds were ineffective as they did not take learners' needs into consideration and were costly in terms of the time that practitioners spent away from their primary work [98]. It has been argued that educational programs should consider the strengths and weaknesses of education activities, expressed learning needs and preferred learning styles [71]. Through face-to-face activities, social and professional support networks can be fostered as working relationships are developed between participants and local practitioners, consultants and registrars involved in presenting sessions [99].

There has been some ambiguity in definitions of 'service' and 'training' posts within the hospital setting. There was a bias towards service rather than education in rural and remote positions [46]. A commitment is needed from those involved in postgraduate training to maintain the connection between training and clinical service [58]. There is a need for well defined learning objectives and links to accreditation particularly from the second postgraduate year [57]. In addition there needs to be a balance between service and training to ensure that practical experience does not result in confidence without competence [70].

McGrath, Graham et al (2006) presented similar findings to the international comparisons presented by Paltridge. They concluded that the existing systems for delivery of education and training were under pressure, inefficient, lacked resources and were not sustainable into the future [57]. Dowton, Stokes et al (2005) recommended that a mechanism needed to be put in place to align decision-making and allocation of resources at all levels [58].

2.3.4 Placement Programs

As indicated previously, a rural training scheme was established in South Australia in 1997. This scheme provided interns with a well-supervised rural

rotation to small rural communities located outside of Adelaide [72, 85]. Through the program numerous benefits were identified and positive experiences were reported by those involved. Benefits included autonomy in clinical decision-making, access to a variety of patients, enhanced opportunities to gain practical consulting and history taking skills, as well as exposure to procedural work, and the ability to undertake continuity of care [85].

South Australia has established a successful track record for providing community-based placements for prevocational doctors and now has the capacity to offer rotations to junior doctors based in all major intern teaching hospitals in Adelaide [84]. An evaluation of placements in South Australia found that junior doctors were exposed to a range of undifferentiated conditions not usually seen in the hospital-setting, had opportunities to gain experience in a wide range of practical skills, had opportunities to practise communication and counseling skills, and received prompt feedback and teaching [100].

The RRAPP has contributed to filling the rural training gap, expanded knowledge about rural community practice, and assisted junior doctors in their decision-making about future training and careers [24]. While the expansion of the RRAPP and its evolution to the PGPPP has doubled the number of placements available nationally [26], this still does not provide sufficient opportunities for all early postgraduate medical officers in Queensland to participate prior to being sent into rural or remote practice.

Vickery and Tarala (2003) identified barriers to implementing the rural placement program over a five year period. There has been a major conflict between medical service funding, as general practice is funded substantially through the Commonwealth Medicare system, and prevocational training which is funded through the state governments [101]. There have been tensions around varying expectations for service and training. Other barriers have included difficulties in coordinating a number of stakeholders, the amount of paperwork, workforce shortages and resources.

The experiences of program facilitators in South and Western Australia has indicated that substantial resourcing has been required to ensure implementation and sustainability of programs. Resources required include indemnity cover for all parties involved, professional and physical capacity for practice to be undertaken, comfortable housing, adequate educational infrastructure, and professional and social integration [84].

General Practitioners have often been required to supervise medical students and vocational registrars as well as participants of the PGPPP [102-103]. There is a concern that the field has almost reached saturation and finding quality placements will become very difficult in the future [84, 94, 102].

2.3.5 Rural Preparatory Program

Evaluation of the content presented through the QRMSA Rural Preparatory Program has reportedly been very positive [104]. However with limited numbers able to be accepted, and the majority of workshops being held in metropolitan Brisbane, it was evident that many junior doctors particularly those located in rural and remote hospitals were missing out on the opportunity to participate.

2.3.6 Other Curricula and Programs

None of the existing curricula and framework documents listed above has completely fulfilled identified gaps in preparation for rural and remote practice. The Toowoomba Hospital's General Medical Training Program has targeted the early postgraduate years but has lacked any application to the rural context [87]. For example, while it has incorporated on-site retrievals and trauma management, other rural issues such as health promotion and managing patients with limited support services, have not been incorporated.

Documents from the professional colleges addressing rural issues have targeted only vocational training and not considered education and training at the pre-vocational or junior doctor level [8, 88-89]. The curriculum frameworks are

very comprehensive and many content components are at a more advanced level than could be reasonably expected of a junior doctor.

The framework developed by Smith (2004) did target early postgraduate doctors and incorporated rural characteristics, however its purpose was not to identify a specific curriculum for preparation for rural practice [90]. It did however set out some of the differences between city and country practice [49]. Hays (2003) warned that care needed to be taken when developing such activities to ensure that rural problem design presented an accurate and realistic picture of rural practice issues [105].

Overall, current initiatives have not adequately been meeting the needs of junior doctors in their preparation for rural and remote practice. While placements and workshops have been identified as useful, there has been limited access to them by hospital-based doctors. There is an identified need for hospitals where junior doctors are based, to be contributing to their preparation for rural practice.

2.4 DESIGNING, DELIVERING AND EVALUATING INTERVENTIONS

There are several important elements that need to be considered when designing and delivering training programs or interventions. Educational programs should incorporate adult learning principles including preferred learning styles and expressed learning needs [71]. Activities should be based on the needs of potential attendees, have recognised teachers, a suitable meeting venue and time frame, effective administration, be evaluated, and meet accreditation standards of the relevant association [106]. Another important consideration is the matching of curricular objectives with teaching location [38], which is pertinent when focusing on rural issues.

2.4.1 Curriculum Design

Much of the literature surrounding curriculum design is school-based. However, the principles can be transferred into the tertiary and continuing education sectors. In the initial stages of developing a curriculum for early

postgraduate doctors a particular orientation or purpose must be defined. There are five primary orientations to curriculum. These are:

1. Cultural – to ensure that the foundations of society are transmitted to the next generation;
2. Personal – to provide for the intrinsic needs of individuals and groups;
3. Vocational – to ensure that students are equipped with the necessary knowledge and skills to enable them to participate actively in the world of work;
4. Social – to enable society to function in a harmonious way for the benefit of all;
5. Economic – to ensure that the productive capacity of individuals and the nation as a whole is taken into consideration [107].

In the context of this study, the curriculum should be predominantly vocationally orientated, as the junior doctors need to be prepared for working both in rural and remote practice, in addition to the hospital setting. It may also have a personal orientation and meet the intrinsic needs of individual doctors who may have an interest in rural practice.

Brady and Kennedy (1999) state that no party is neutral when it comes to curriculum design [107]. The eventual form that it takes, in the shape of guidelines or frameworks, represents a consensus between groups and individuals in society seeking to influence the education of its target audience. Similarly in early postgraduate education and training there is a range of stakeholders who want to be, or should be, involved in program design. Training programs should be planned carefully and it is highly desirable that the participants should be involved in the planning process [108]. Table 5 outlines the potential stakeholders when developing school-based curriculum and extrapolates to the field of postgraduate medical education.

Table 5. Curriculum stakeholders in postgraduate medical education.

Stakeholders	**Postgraduate Medical Education Field**
Individuals	Junior doctors, clinical teachers, patients
Groups	Hospitals, Vocational training colleges
Government	Health department
Business community	Employers and employees
Universities and other educational places	Clinical teachers and researchers
Community groups	Individuals and community groups
Social service agencies	Health-related individuals and agencies eg. Social workers

Source: Based on Brady L, Kennedy K. Curriculum construction. Sydney: Prentice Hall; 1999.

Price and Prideaux (1996) state that the curriculum design process needs to achieve agreement on curriculum statements from each of the stakeholders. The process needs to be participatory and collaborative, and suggest that the situational analysis model be considered [109].

Situational analysis is the process of examining the context in which the curriculum is to operate [110]. Contextual factors can be external such as cultural, system, resources, support systems and changing subject, or internal including students, teachers, ethos, material resources, perceived and felt problems [107]. The five key elements of the situational analysis model are:

1. Situational analysis;
2. Goal formulation;
3. Program building;
4. Interpretation and implementation;
5. Monitoring, feedback, assessment, reconstruction [110].

There were not any models identified that were used commonly to develop prevocational education and training programs. Use of the situational analysis

model would allow the context of rural practice to be considered in the development of a curriculum. In addition, the second step of the model enables specific goals relating to rural practice to be designed for the curriculum.

2.4.2 Curriculum Delivery

The third and fourth steps of the situational analysis model are program building and implementation [110]. Junior doctors are required to undertake much more responsibility and possess a greater range of knowledge and skills than their metropolitan counterparts to be able to function appropriately in isolated communities and with limited on-site support. Higher level cognitive processes such as analysis and solving of problems, making decisions and reflection upon outcomes, are skills required to apply clinical knowledge to patient presentations in different environments. When programs are being developed or built, the inclusion of skill development in these areas needs to be considered.

Biggs (1999) describes good teaching as 'getting the most students to use the higher cognitive level processes' [111: 4]. He outlines two types of learning: surface and deep learning. The surface approach uses lower cognitive levels and is 'just getting the task done'. The surface approach is characterised by rote learning, memorising, and note taking. When building a program, by encouraging deeper learning, students will achieve higher levels of engagement and activity, which is characterised by applying, generating, reflecting and theorising [111].

Several studies on the effects of continuing medical education activities found that interactive workshops, more complex interventions such as outreach visits or the use of opinion leaders and multi-faceted strategies could result in moderately large changes in professional practice, while didactic sessions and dissemination-only strategies such as conferences and mail-outs were unlikely to enable any changes [112-115]. Interactive strategies including workshops, outreach visits, opinion leaders and multi-faceted activities facilitated higher levels of engagement by participants and encouraged a deep approach to learning. Using strategies that facilitate a deep approach to learning would

enable junior doctors to develop skills that would change their performance, assisting them in becoming independent practitioners [112-115].

Knowles (1990) has described the differences between andragogy and pedagogy and put forward the andragogical model [116]. Andragogy is the methods or techniques used to teach adults. The six assumptions, differing from the pedagogical model, are: adults need to recognise why they need to learn something; they have a self-concept of being responsible for their own decisions; they have a greater volume and different quality of experience than youths; adults become ready to learn to cope with real-life situations; they are motivated to learn if the content is perceived as relevant to future aspirations or life situations; and they are motivated by external factors such as promotions or internal factors such as job satisfaction.

The majority of early postgraduate education and training is held within the hospital setting. Based on the Postgraduate Medical Education Foundation of Queensland's accreditation guidelines, hospital activities generally include orientation and formal education activities which supplement learning in the clinical environment [59]. Orientation and education activities could also assist junior doctors in their preparation for rural practice, if they consider not only clinical knowledge and skills required, but other factors that influence practice and lifestyles in rural and remote communities. Some orientation could be undertaken via teleconference, videoconference or email if the relieving doctor cannot meet face-to-face with the outgoing practitioner [117].

Hays and Veitch (1999) suggest four points to consider in the development of learning activities: make education relevant to participants; understand participants preferred styles of learning; choose teaching and learning strategies that match participants' needs and learning objectives; and link continuing education to change in practice [118]. This last point is most important. Education must be able to be linked to, and relevant to performance.

Jones and Higgs et al (2001) state that flexible methods of curriculum delivery are replacing rigid educational programs in undergraduate medical education [52]. Curricula have shifted from teacher-oriented to student-centred models. They report the General Medical Council in the United Kingdom has recommended learning by curiosity rather than by rote. Similarly, problem-based learning has become common in Australian with fifteen of the nineteen medical schools using the strategy in some form. Self-directed learning by students has increased accordingly [52]. Considering these theories in the planning, development and delivery of learning activities, junior doctors could be encouraged to undertake deeper learning.

2.4.3 Curriculum Evaluation

The final element of the situational analysis model is monitoring and evaluation [109-110]. Accreditation standards for junior doctor education and training in Queensland teaching hospitals require evaluation to be undertaken at several levels [59]. Evaluation is required of education activities, orientation and experiences through term rotations, and the whole of the year in general.

Kirkpatrick's model of evaluation identifies four levels:

1. Reaction of student - what they thought and felt about the training;
2. Learning - the resulting increase in knowledge or capability;
3. Behaviour – the extent of behaviour and capability improvement and implementation/application;
4. Results - the effects on the organisation or environment resulting from the student's performance [119].

The evaluation requirements to achieve and maintain accreditation fall predominantly into the first level of Kirkpatrick's model [119]. The junior doctors are asked to comment on what they thought about the education, orientation and experiences received through term rotations. In this study the reaction of participants was obtained through similar process evaluation measures. In addition, higher levels of evaluation were pursued through

measurement of impacts and outcomes and to a minor degree the effect on the organisation.

There has been a shift away from process-oriented measures toward outcome-oriented evaluation, particularly of educational programs [120]. Hawe (1989) cited in Hays and Veitch (1999) defines outcomes evaluation as the measure of subsequent or longer term effects of the program, whereas impact evaluation measures the immediate effects of the program [118]. The Accreditation Council for Graduate Medical Education (ACGME) based in the United States defined outcomes evaluation as:

> 'evidence showing the degree to which program purposes and objectives are or are not being attained, including achievement of appropriate skills and competencies by students' [121].

Outcomes evaluation aligns with the third level in Kirkpatrick's model [119]. The primary difference between an outcomes-oriented approach and other approaches is the focus on obtaining evidence [120]. The collection of evidence can demonstrate the extent to which a program resulted in the participants' learning what was planned, whether their behaviour changed and competency was gained in a particular area [120]. Kirkpatrick states that there needs to be a transfer of knowledge and skills [119].

Impact evaluation is undertaken to monitor the program delivery and its short term effects, with the aim of determining the value or worth of the program [122]. This type of evaluation is generally undertaken at the conclusion of activities. Typical aspects assessed may include goal achievement, intended and unintended effects; and differences in implementing the program. This fits with the second level of evaluation in Kirkpatrick's model where increases in knowledge or capability are measured [119].

Process or interactive evaluation is used to measure the value of various aspects of a program and focuses on improving delivery [118, 122]. Activities are generally undertaken during the implementation and focus on further

development and improvement [122]. This aligns with the first level in Kirkpatrick's model [119].

While outcome measures provide a good indication of educational effectiveness, impact and process measures will inform the evaluation by assessing other aspects such as program reach and feasibility of implementing the program and the immediate effects on the participants [120].

2.5 CONCEPTUAL FRAMEWORK

The majority of the literature and current programs and initiatives targeted improving the knowledge and skills of junior doctors through education and training. Education and training was presented in various forms including university study, formal training within the hospital setting, workshops and courses and the development and implementation of curricula. The only initiative that approached rural preparation from a different perspective was the rural placement program [24]. However, as discussed there were insufficient places in this program for the number of junior doctors required to go into rural practice. This study aimed to close the gap in rural training by developing and evaluating multiple strategies within a focused program to distinguish the most successful approach to rural preparation.

The literature reviewed in this study has highlighted the absence of a suitable program for preparing early postgraduate medical officers for rural practice, which to be accessible by the majority of junior doctors, would ideally be delivered in the hospital setting. A conceptual framework based on the situational analysis model has been designed to guide this study (see Figure 2).

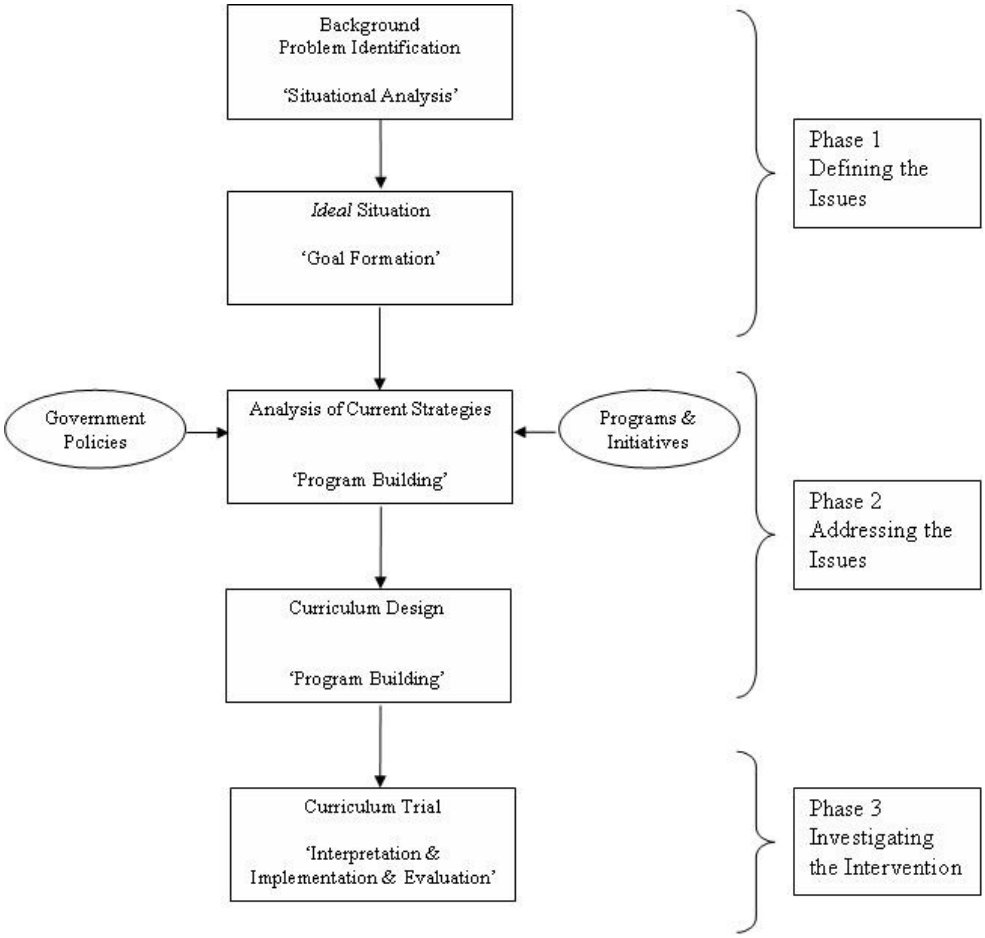

Figure 2. Conceptual framework for closing the rural training gap.

The first two steps of Skilbeck's situational analysis model, relate to phase one of the study. During phase one the first step was to identify the problem and explore the context in which it existed. Background information was sought to assess the situation faced by junior doctors in rural practice. The level of preparation and support required was also investigated and informed the development of feasible goals.

The second phase, which corresponded to 'program building' in the situational analysis model, saw the development of an intervention. Current government policies were investigated, in addition to programs and initiatives that were developed in response to these. Triangulation of key information and content within these policies, programs and initiatives informed the content of a

curriculum that was designed to address the problem. In the context of this study the resulting program aimed to ensure that junior doctors gained appropriate knowledge and skills (core rural competencies) to manage common rural presentations.

The third phase addressed the final two steps in Skilbeck's situational analysis model which were implementation and evaluation of the program [110]. The program was trialed and Kirkpatrick's model guided the evaluation [119]. Process evaluation measured the participant's reaction to the program. Other measures focused on what was learnt, and the impacts on the participants and the organisations for which they worked.

CHAPTER 3: RESEARCH DESIGN

3.1 ETHICAL CONSIDERATIONS

Ethical approval for the study was sought from the Flinders University, Social and Behavioural Research Ethics Committee. Due to the evolving nature of the study approval was applied for, and received, in two stages. Ethics approval was also required from James Cook University (JCU), the researcher's employer. The JCU Human Ethics Sub-Committee acknowledged the approval for the project from Flinders University. As the study involved employees of the State Health Department, permission for conducting the study was obtained from the Principal Medical Advisor, Health Advisory Unit and the Health Services Manager, Queensland Health. A project information sheet was developed and distributed to all participants (see Appendix A).

3.2 STRUCTURE

The research question addressed in this study was:

> What strategies will prepare early postgraduate doctors effectively for practice in rural and remote communities?

The study was conducted over two years and could be divided into three phases. These were:

Phase 1: Defining the issues;
Phase 2: Developing an intervention to address the issues;
Phase 3: Evaluating the intervention trial.

The first phase was exploratory and data collected investigated further the issues that were identified in the literature and those that were evident in current practice. Data were collected through interviews with key informants. Corresponding with Skilbeck's model this provided the background information and defined the problem being researched [110]. It also allowed the goal or purpose of the program to be defined.

In the second phase an intervention, or program, was developed to address these issues. The data collected in phase one informed the development of intervention in line with the third stage of Skilbeck's model, 'program building' [110].

Phase three of the study was the implementation and evaluation of the intervention using case study methodology. Again this was in line with the final two stages of the situational analysis model [110]. Kirkpatrick's model was used to guide evaluation of the program [119]. Data were collected through interviews and brief questionnaires with those involved in the trial. An overview of each phase and data collection activities is presented in Table 6.

Table 6. Data collection points by timeframe.

Phase	**Baseline**	**6 months**	**12 months**	**18 months**	**24 months**
1	Interviews with key informants				
2		Development of intervention			
			Intervention Trial: *Supporting Junior Doctors Going Bush* Program		
3	[Baseline data collected in key informant interviews]			Mid-trial Interviews	End-trial Interviews
	Pre-PGY1 questionnaire		Pre-PGY2 questionnaire		Post-PGY2 questionnaire

3.3 PHASE 1: DEFINING THE ISSUES

While there was much literature discussing experiences of medical students and training program registrars in rural and remote practice, there was little investigating the experiences of junior doctors, particularly focusing on rural practice. The method of the first phase of the study was exploratory. It aimed to: explore the current environment of rural and remote medical practice, including issues and difficulties; identify core competencies required by junior

doctors; assess the preparation and support structures currently available; and explore strategies toward achieving the competencies. The methodology chosen to do this was through a series of semi-structured interviews with key informants.

3.3.1 Selecting Key Informants

Purposive sampling methods were used to identify key informants. This method is based on the premise that the researcher's knowledge about the population can be used to hand pick the cases to be included in the sample [123]. That is, the subjects are particularly knowledgeable about the issues under study. Bias was minimised by selecting interviewees with varying associations to the topic being studied. Interviewees included junior doctors, rural practitioners, Directors of Clinical Training (DCTs) and Medical Education Officers (MEOs), Medical Administrators and academic rural practitioners. Table 7 indicates the positions held by respondents.

Table 7. Positions held by respondents.

Position	Number Invited	Number Participated	Percentage of Total
Junior Doctors	6	5	26.3
Medical Administrators	4	4	21.1
Directors of Clinical Training	5	3	15.8
Medical Education Officers	4	3	15.8
Rural Practitioners	2	2	10.5
Academic Rural Practitioners	2	2	10.5
Total	23	19	100.0

Source: Key Informant Interviews.

A total of 23 respondents were selected initially ensuring more than one from each position type. This approach enabled information to be collected from the various perspectives on the subject being studied. Of these 23 respondents, 19 consented to be interviewed. Of those who did not participate, one was not contactable, one had resigned, one was too busy and one was new to the

position and did not feel a valuable contribution could be made to the project. No further respondents were sought after these interviews as saturation of the data had been reached, that is, no new ideas were being raised.

3.3.1.1 Junior Doctors

The question being addressed in this study was what strategies would effectively prepare early postgraduate doctors for practice in rural and remote communities. As such, it was essential to involve early postgraduate doctors in the study. To be eligible for inclusion the junior doctor must have had some experience in rural practice within the geographical area, that is, had undertaken practice in a rural post within Northern or Central Queensland. Of the six junior doctors invited, a total of five agreed to participate (see Table 7). All of the doctors were from the case study hospitals in the trial.

3.3.1.2 Program Facilitators

In this study program facilitators were defined as those people directly involved in providing a range of services for junior doctors, in particular orientation activities, education and training, personal support and advocacy. Program facilitators invited to participate in data collection activities were the Directors of Clinical Training and Medical Education Officers based at hospitals within Northern and Central Queensland. This group of people was chosen as the members had valuable insight and experience in the development and delivery of training programs, knowledge of the issues and problems experienced by junior doctors, and the levels of support that were required. DCTs and MEOs were responsible for assessment, training and support of junior doctors including those who were required to go on rural relieving rotations. Of the nine program facilitators invited to participate in this study, six were interviewed (see Table 7).

3.3.1.3 Other Relevant Groups

In the development of the study it was important to involve other relevant individuals or groups who had a vested interest in the topic. These stakeholders were selected due to the positions they held and the location of their employment within Northern and Central Queensland. The other

stakeholders were medical administrators who were responsible for overseeing programs involving junior doctors, rural practitioners who relied upon junior doctors for providing relieving services for them and academic rural practitioners who were recognised as experts in the field, due to their background, experience and publication record.

3.3.3 Data Collection Tool

Primary data were collected through semi-structured interviews. An interview proforma was developed and included both open and closed questions (see Appendix B). Open questions enabled free responses to be provided and closed questions provided more focused responses. Questions addressed the following topics:

- Background of interviewee,
- Environment of rural and remote practice,
    - Barriers and difficulties
    - Competencies required for rural practice
- Current programs and support structures provided for PGY2s,
- Evaluation of current courses available,
- Feasible strategies to meet /support attainment of core competencies.

The stakeholders were sent an email introducing them to the study and inviting them to participate. Participation was voluntary and participants could withdraw at anytime. The interviews were conducted either in person or via telephone and lasted between approximately fifteen and sixty minutes. With the participants' consent, the interview was recorded on audio tape.

The interviews were transcribed by a research assistant. The researcher undertook a systematic analysis of the data using QSR Nvivo 2 software. The common themes in the data were coded together broadly using the 'node' function. These nodes were revised and refined further once all of the interview transcripts had been analysed. Some data had to be re-coded as new themes emerged and new nodes were created. A total of 69 nodes resulted. Comparable nodes were linked together to form 'trees'. Figure 3 lists the trees

identified in data analysis. These trees identified the key result areas of this phase of the study.

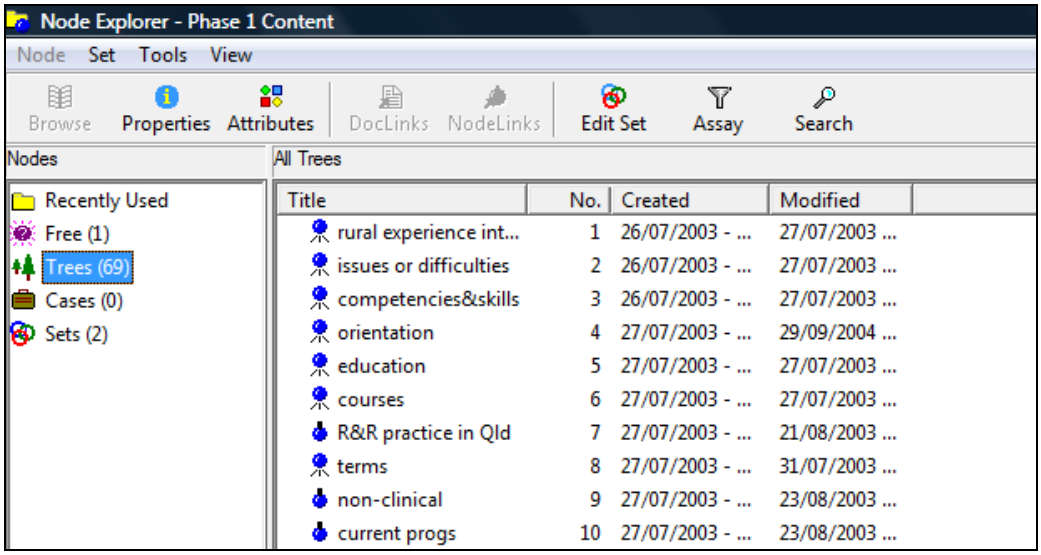

Figure 3. Overview of 'trees' identified in data analysis.

The results were compiled into a report and distributed to the participants. The report contained a summary of all data collected including the nature of rural practice, competencies required for rural practice, the content of strategies to pursue these and an overview of current education and training. This allowed construct validity to be maximised as participants reviewed the report and were able to provide feedback on the representation of the results. There were no concerns raised by the participants regarding the accuracy of data in the report.

3.3.4 Interpreting Data in Context

Findings and quotes have been referenced in the text to allow data from the interviews to be interpreted in the appropriate context. In phase one, responses from participants are coded as 'AB' where 'A' corresponds to the position of the respondent and 'B' represents an individual (see Table 8).

Table 8. Coding system for phase 1.

Code	Corresponds to…
A	ARP - Academic Rural Practitioner DCT - Director of Clinical Training JD - Junior Doctor MA - Medical Administrator MEO - Medical Education Officer RP - Rural Practitioner
B	An individual numbered from 01 to 19

For example, in phase one the code 'ARP01' corresponds to comments made by an Academic Rural Practitioner who was individual number one in the data collection activity. Validity and reliability of interview data will be discussed later in this chapter.

3.4 PHASE 2: DEVELOPING AN INTERVENTION

Following on from the first phase of the study, the aim of phase two was to develop a rural preparatory program, for postgraduate year two doctors that could be delivered feasibly within the hospital setting. The methodology of this phase was program building.

The findings from phase one, in particular the competencies identified for rural practice, were triangulated with the literature [49], topics from the existing rural workshop, the curriculum framework for early postgraduate doctors devised by the PMEFQ [81], the results of a needs analysis undertaken in a remote Health Service District [124], statistics from the State Health Department [125-127] and the current term assessment form for early postgraduate doctors [83]. A minimum set of key competencies, knowledge, skills and abilities required by junior doctors going into rural or remote practice was defined. The competencies were assigned to a level (in training), in concurrence with work completed by the PMEFQ. This assisted to identify at what stage of the doctors training, these competencies should be developed [65]. The *Supporting Junior Doctors Going Bush* Program resulted and

consisted of four strategies. Details of each strategy are presented in Chapter 5.

All of the resources for the program were provided in two modes: on a website and on compact disks (CDs). The PMEFQ agreed to host a website for the project, on behalf of the researcher to enable content and resources to be located centrally and be accessible to both program facilitators and participants at all four case study hospitals. The researcher was given remote access to upload and edit pages as required. This facilitated easy access to the program information and resources for program facilitators and participants at all of the hospitals.

The researcher's peer group of Medical Education Officers, in addition to the Directors of Clinical Training and Medical Administrators, were invited to undertake critical review of the program and website. One Medical Education Officer with a background in information technology provided valuable feedback on the content and the design of the site. As a result minor changes were made to the layout of information and colour scheme. Copies of the website were also provided to the program facilitators on CDs.

Promotional materials for the program included the CDs, bookmarks and posters. Mail-outs were undertaken directly to the participant group to raise awareness of the program and its resources. Resources included:

- general information about the project and copies of reports,
- a guide outlining how the program was to be implemented on-site,
- content on the education topics including learning objectives, session plans and case studies,
- CDs demonstrating various procedural techniques,
- course information and upcoming dates, and
- content for orientation to rural practice including community profiles.

More specific details are presented in Chapter 5.

A description of how the program was used in each of the case study hospitals is presented in the feasibility results chapter. The chapter describes how well the program was able to be implemented in each case study hospital. This was an important aspect of the study which investigated contextual issues in rural program delivery.

3.5 PHASE 3: INVESTIGATION OF THE PROGRAM TRIAL

Using Kirkpatrick's model, all levels of evaluation were addressed in this study to measure different aspects of the program [119]. Case study design was chosen as the appropriate method for this phase of the study. There were uncontrollable differences that existed in each of the settings where the program was to be implemented. Case study design provided a more flexible approach and enabled explanations to be explored. It facilitated the in-depth study of a complex phenomenon, in context.

Case studies are used when contextual conditions may be an important factor in explaining the phenomenon being investigated [128]. Case study research is defined as:

> 'An empirical enquiry that:
>
> - investigates a contemporary phenomenon within its real-life context, especially when
> - the boundaries between phenomenon and context are not clearly evident' [128].

In this particular study the phenomenon under investigation was a program consisting of four strategies. The implementation of the program was studied in real-life contexts, that is, within each individual hospital setting. It was unclear to what extent implementation would be affected by differences between the different settings. The trial allowed for assessment of the feasibility of implementing such a program, in different settings, through implementation in semi-metropolitan, rural and remote centres. Issues that were explored included what aspects of the strategies were feasible, the quality of resulting activities, barriers that were experienced, and possible solutions. Both qualitative and quantitative data were collected from a multiple sources

within each case study. The sources were Directors of Clinical Training, Medical Education Officers, and Junior Doctors. A benefit of case study research is the ability to answer the 'how and why' questions in addition to the 'what' questions [128]. This approach allowed for in-depth investigation of how each of the strategies could be implemented, which were successful and why they did, or did not work.

In addition, impact evaluation measured whether or not the participants' knowledge and skills had improved, their preparedness and intentions for rural practice had changed and also any effects on the organisations for which they worked. A cohort of junior doctors was followed for a two-year period throughout its first (internship [PGY1]) and second (junior house officer [PGY2]) postgraduate years. Data collection activities were undertaken throughout the two years to investigate which of the strategies were most effective for preparation.

3.5.1 The Cases

The study was conducted within Northern and Central Queensland. Four teaching hospitals were selected as case study sites. Three of the hospitals were located within this geographical boundary and the fourth hospital provided junior doctors to undertake rural terms and relieving within the same area. Hence, all junior doctors participating in this study had the opportunity to undertake practice within Northern and Central Queensland.

Three hospitals were selected, in consultation with the Principal Medical Advisor of Queensland Health. Two rural hospitals were chosen on the basis that they were approved by the State Health Department to offer a two-year contract to early postgraduate doctors [129]. This strategy targeted, in particular, those junior doctors holding rural scholarships and aimed to provide a broad generalist experience over the two years, to assist them prepare for future rural practice. Terms allocated in the second year were designed to build on and complement, those undertaken by junior doctors during the intern year.

The third hospital, located in a remote setting, was chosen due to the high proportion of Queensland Health Rural Scholarship holders placed there in their second postgraduate year. These hospitals were considered representative of the class of hospitals providing rural training within the state as the incumbents were placed there with the aim of preparing themselves for going into rural or remote practice in the future.

The fourth hospital was recruited to provide a contrast to the other three in the study. Located in a semi-metropolitan environment, its inclusion provided the opportunity to draw comparisons across metropolitan, rural and remote centres. While practice and training at this centre was not generally rurally focused, junior doctors located there were required to undertake rural terms and placements. Inclusion of this facility allowed some investigation into how different training environments impacted upon preparation for rural practice.

Details of each hospital, hereafter referred to as Hospitals 1 – 4, are presented in Table 9. Hospital 1 was located in a semi-metropolitan area and had 280 beds. It was in very close proximity to a tertiary facility. There were 12 junior doctors in the cohort, none of whom held a Queensland Health Rural Scholarship.

Table 9. Case study hospital and cohort characteristics.

Criteria	**Hospital 1**	**Hospital 2**	**Hospital 3**	**Hospital 4**
Population	174,558	82,288	60,084	21,043
RRMA	2	3	3	6
Beds	280	163	203	81
Approx distance to nearest tertiary facility (kilometres)	20	380	700	920
No of PGY2s in Cohort	12	5	4	5
No of Rural Scholarship Holders	0	3	4	5

Sources: MEO/DCT Questionnaires, Queensland Health District Profiles and ABS data [125-127, 130-131].

Hospitals 2 and 3 were categorised as being located in RRMA 3, large rural centres [16]. Hospital 2 had 163 beds and was approximately 380 kilometres from the nearest tertiary facility. Three of the five junior doctors eligible for participation in the study held a Queensland Health Rural Scholarship. There were 203 beds at Hospital 3 which was approximately 700 kilometres from the nearest tertiary facility. All of the junior doctors at this facility were Queensland Health Rural Scholarship holders.

The fourth hospital had 81 beds and was located in a remote centre (RRMA 6). It was nearly 1,000 kilometres from the nearest tertiary facility. All five of the junior doctors in the cohort held a Queensland Health Rural Scholarship.

3.5.2 Program Facilitators

The DCT and MEO at each of the four hospitals were responsible for the implementation of the program as a part of the trial. There was not a MEO at Hospital 4 located in the remote centre. Of these seven individuals, four had also been involved in the first and second phases of the research. Consequently, they were well aware of the goals of the project and what the researcher was aiming to achieve. The researcher contacted the three program facilitators who were not involved in the initial research to discuss the program and its requirements. These DCTs and MEOs were keen to be involved in the trial.

The researcher met face-to-face with all of the program facilitators at the beginning of the trial year to outline the requirements. After this face-to-face meeting, the researcher reinforced what was required of each program facilitator by emailing a copy of the 'Guidelines for On-Site Delivery'. This documentation was also available on the website and CDs developed for the project. The researcher was available to answer questions via telephone or email at any time.

Qualitative and quantitative data were collected at two points in time, at the mid-point of the trial and at the conclusion of the trial. A combination of interviews and questionnaires was used. All seven of the program facilitators

participated in both the qualitative and quantitative data collection activities, resulting in a 100% response rate.

3.5.2.1 Qualitative Data

Individual semi-structured interviews were conducted with program facilitators consisting of primarily open-ended questions. The proformas are presented in Appendices C and D. Open-ended questions prevented the researcher from leading the interviewee, and enabled any interesting issues to be explored in further depth. The questions posed were similar to those asked of junior doctors. This enabled the different perspectives surrounding program activities to be evaluated and compared. An overview of the objectives and variables is presented in Table 10.

Table 10. Objectives and variables for interviews with program facilitators.

Objectives	**Variables**
To obtain demographics	• Position • Years in position (experience)
To identify characteristics and rural experiences of the junior doctor cohort	• Number and location of rural terms • Number and location of country relieving • Length of placement/s • Reflection on experiences
To evaluate hospital-based activities	• Discuss terms available • Discuss educational programs • Orientation for rural placements • Access to courses
To evaluate program information	• Awareness of program • Resources accessed and usefulness • Barriers and suggestions • Benefits

With the participant's permission, interviews were tape recorded and transcribed by the researcher or a research assistant. Transcripts were analysed using QSR Nvivo 2 software to identify the common themes. Using the software these themes were coded into 'nodes'. A total of 185 nodes resulted. Related nodes were grouped into trees. See Figure 4 for an outline of the trees identified in the data analysis.

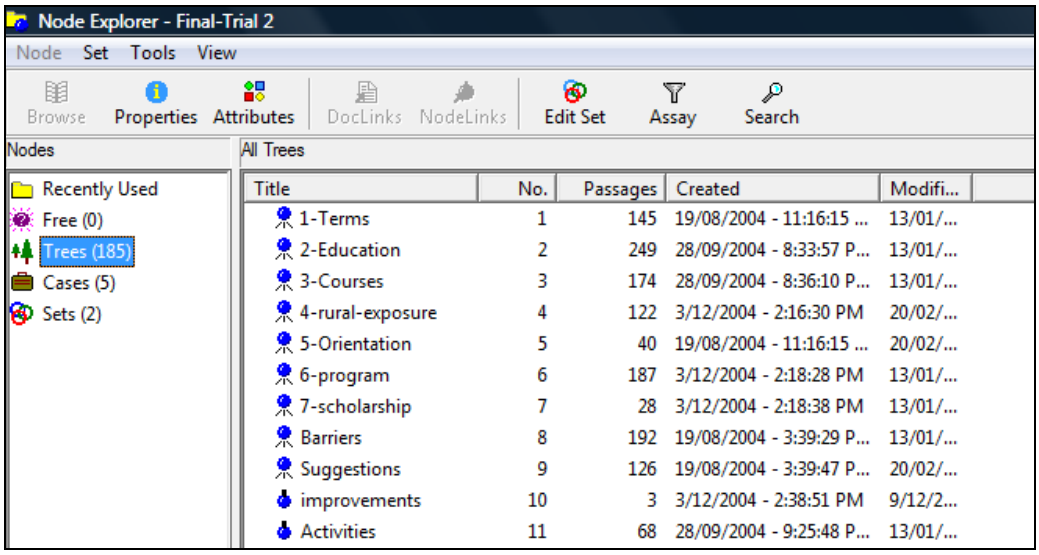

Figure 4. Overview of 'trees' identified in data analysis.

Results collected from the mid-trial interviews were discussed in a presentation made by the researcher at a state-based medical education workshop where the facilitators and other stakeholders were in the audience. Results were also distributed in a written report to the respondents to validate the outcomes. This process was repeated at the end of the trial where again the collated results were distributed to those who participated for review and comment. There were no concerns raised by participants regarding the accuracy of the results outlined in either of the reports.

3.5.2.2 Quantitative Data

Brief questionnaires were implemented twice and were completed by the four DCTs in conjunction with the three MEOs at each respective hospital. The questionnaires included demographic data on the group of junior doctors, characteristics of the hospitals, and the extent to which educational topics were

able to be included in hospital-based programs (see Appendices E and F). An overview of the objectives and variables are presented in Table 11.

Table 11. Objectives and variables for questionnaires to program facilitators.

Objectives	**Variables**
To obtain statistical data on the group of junior doctors	• Number of PGY2 doctors • Number of these doctors who completed their intern year within the hospital • Number of Rural Scholarship holders • Number of IMGs
To obtain hospital characteristics	• Number of beds • Approx distance to nearest tertiary facility • Number of PGY2 positions available • Number of Rural Scholarship Holders
To measure the extent to which educational topics were implemented	• Topic area covered or not covered

3.5.3 Junior Doctors

Data were collected from those junior doctors who were employed at the four case study hospitals in their second postgraduate year. Twenty-six eligible junior doctors were invited to participate in both qualitative and quantitative data collection activities.

3.5.3.1 Qualitative Data Collection

The junior doctors were sent a letter of invitation and a project information sheet, which detailed requirements for participation. The Medical Education Officer at each respective hospital contacted the junior doctors to ascertain

their decision as to whether or not they wished to participate. In accordance with ethical requirements, written consent was obtained for all interviews.

The response rate for interviews was 96.2%. One respondent was unable to participate in the interview due to work commitments. See Table 12 for responses at each case study site.

Table 12. Response rate for qualitative data collection.

Location	**Total in Cohort**	**Completed Post-PGY2 Interview**	**Response Rate**
Hospital 1	12	11	91.7%
Hospital 2	5	5	100.0%
Hospital 3	4	4	100.0%
Hospital 4	5	5	100.0%
Total	26	25	96.2%

Source: Junior Doctor Interviews.

Data were collected at the conclusion of the trial through a semi-structured interview held either face-to-face or via telephone. An interview proforma was developed (see Appendix G). Questions evaluated each of the four strategies within the program, any rural or remote experiences obtained during the year, perceived preparedness for practice and satisfaction with the rural scholarship scheme, if applicable (see Table 13). Interviews allowed any issues that were raised to be explored in further depth.

Table 13. Objectives and variables explored in junior doctor interviews.

Objectives	**Variables**
To identify those who had undertaken a rural placement, and evaluate placement	• Number and location of rural terms • Number and location of country relieving • Length of placement/s • Reflection on experiences
To evaluate hospital-based activities	• Discuss terms available • Describe educational programs • Orientation for rural placements • Access to courses
To evaluate program information	• Awareness of program • Resources accessed and usefulness • Barriers and suggestions • Benefits
To gain feedback on the rural scholarship scheme	• Scholarship recipient status • Benefits of participation • Barriers and suggestions

Interviews lasted up to forty minutes. With the participants' consent, interviews were recorded on audiotape and transcribed by the researcher or a research assistant. QSR Nvivo 2 software was used by the researcher to assist in analysing the data and identify emerging themes. Again, the software enabled themes within the data to be coded and assigned as 'nodes', which were subsequently grouped into 'trees'. These trees identified the key result areas in the data. Interviews were not undertaken prior to the second postgraduate year. Data was collected at this time via questionnaire.

3.5.3.2 Quantitative Data Collection

A questionnaire was administered three times; to collect baseline data at the beginning of PGY1 year; to collect further data before the intervention at the beginning of PGY2 year; and after the intervention at the conclusion of the

PGY2 year. Copies if the questionnaires are included in Appendices H, I, and J.

The cohort for the study was defined as those junior doctors who were employed at one of the four case study hospitals in their second postgraduate year. As these positions were not finalised until twelve months after the beginning of data collection, the target group for collecting baseline data was all medical officers in their first postgraduate year in Queensland teaching hospitals. However, only data for those in the cohort being examined have been included in this thesis.

The State Health Department provided the names of graduates from The University of Queensland, the only medical school in the state at that time. The Medical Education Officers based in the teaching hospitals provided the names of any additional junior doctors recruited directly by their hospital from interstate or as International Medical Graduates who had completed their medical training overseas.

All junior doctors undertaking internship were sent a letter inviting them to participate in the study by the Principal Medical Advisor of the State Health Department. An information sheet, the questionnaire and a reply paid envelope were provided by the researcher and included with the letter of invitation. There were some inaccuracies in the database due to decisions surrounding changes in hospital preference.

Of the 26 junior doctors who met the criteria for participation in the project, 19 completed the initial PGY1 questionnaire resulting in a response rate of 73.1%. A total of 14 returned the pre-PGY2 questionnaire resulting in a response rate of 53.8%, and 20 completed the post-PGY2 questionnaire, the response rate being 76.9%. Response rates by each case study hospital are presented in Table 14.

Table 14. Response rates for quantitative data collection.

Hospital	Total in Cohort	Completed PGY1 questionnaire	Completed pre-PGY2 questionnaire	Completed post-PGY2 questionnaire
Hospital 1	12	7	4	8
Hospital 2	5	3	3	4
Hospital 3	4	4	3	4
Hospital 4	5	5	4	4
Total Responses	26	19	14	20
Response Rate		73.1%	53.8%	76.9%

Source: Junior Doctor Questionnaires.

In all three data collection points, follow-up contact was made to encourage a higher return rate. Two reminder letters with questionnaires were sent. With the initial questionnaires that were distributed immediately before and after the second postgraduate year, a tea or coffee bag was included with the invitation as a small incentive for participation.

The response rates achieved in this study are not as high as anticipated. This affected the strength of outcomes and is considered in interpretation of the findings. Some individuals did not respond to all three questionnaires and this limited the ability to make comparisons over time.

3.5.3.2.1 Questionnaire Development

The three questionnaires were developed considering related studies in the literature. Some variables were included as they were identified as important factors in decision making as reported in the literature. Studies have shown that rural background and rural educational experiences influence future preferences and hence these variables were included in this study [36]. The structure of some questions in the study by Woloschuk and Tarrant (2002) was seen as a useful basis for this project to measure future training preferences, but it was necessary to reword questions to make them appropriate to the target audience. Other questions were included to obtain the data necessary to answer the research question.

The questionnaires measured self-assessed preparedness, in terms of confidence for practice in different working environments (group and solo practice), and community sizes (urban, rural and remote settings). Data were also collected on intentions for vocational training and future practice locations.

In the pre- and post-PGY2 data collection, a series of questions was included to measure perceived competency in a range of core rural presentations. These core presentations were based on the findings from the first phase and were intended to determine whether these were specifically developed in the second postgraduate year.

Various question types were used depending on the type of data that would be most useful for analysis. Question types included open-ended, short answer, tick boxes and Likert rating scales. Five point scales produce a tendency for respondents to record the middle value where there is uncertainty [132]. Therefore, a six point Likert scale with no neutral position was used in an attempt to elicit some commitment to a statement from respondents. Statements related to preferences for future training and practice location, perceived preparedness for practice and living in rural and remote locations. Demographics were recorded using tick boxes and short answer. Questions dealing with reasons for hospital location preferences and aspects currently influencing the respondents' decisions were open-ended to allow for detail to be recorded.

An overview of the questionnaire objectives, variables and timeframe for quantitative data collection is presented in Table 15.

Table 15. Objectives, variables and timeframe for implementing the junior doctor questionnaires.

Objectives	**Variables**	**Data Point**	
		Pre-PGY1	**Pre- and Post-PGY2**
To record demographics	• Gender • Year of birth • Place of birth • Primary school location • Secondary school location • Marital status • No of children	✓	✓
To record educational background	• University where studied • Previous degrees held • Scholarships held	✓	-
To identify previous rural exposure	• Rural placements during medical school	✓	-
To ascertain preferences for future training and practice location	• PGY1 location • Preferred PGY1 location, why • Preferred PGY2	✓	-
	• Current status for vocational training	✓	✓
	• PGY3+ years • Registrar years • Rural up to 5 years • Rural over 5 years • Provide locums • Current influences	✓	✓
To measure perceived preparedness for practice by location	• Hospital – large town, city • Community / GP – large town, city • Hospital - rural town, multi-doc • Community / GP - rural town, multi-doc • Solo practice, isolated	✓	✓
To measure perceived preparedness for living by location	• Large town, city • Rural or remote town • Isolated community	✓	✓
To evaluate effectiveness of medical school in preparation for practice	• Lectures • Practical sessions • City placements • Rural placements • Self-direct activities	✓	-
To assess changes in knowledge and skills	• Self-reported competency in 20 topics	-	✓
To assess additional training accessed	• Participation in courses	-	✓

3.5.3.2.2 Pilot study

Prior to the implementation of the PGY1 questionnaire a pilot study was undertaken to ensure the data collection tool had construct validity. The draft questionnaire was reviewed by experienced researchers and the study supervisors. Resident Medical Officers based at the hospital in which the researcher was employed were invited to participate in the pilot study. This group comprised doctors primarily in their second and third postgraduate years. The questionnaire was self-administered and ten doctors participated in the pilot study.

Analysis of the information provided, resulted in some minor amendments being made to the wording and format of the questionnaire. One demographic question was added to provide more specific information on the background of respondents and a 'don't know' option was added to questions which used Likert scales. After the amendments had been made, experienced researchers again reviewed the questionnaire. A number of additional minor changes to wording were made to further clarify some questions.

3.5.3.2.3 Linking the Questionnaires

Participation in the study was voluntary. Questionnaire respondents were asked to provide their mothers 'maiden' names, which allowed them to remain anonymous, but enabled the questionnaires from each data collection point to be linked. These details would not change and were asked on each of the three questionnaires.

Several components of the baseline questionnaire were repeated at both data collection points in the second postgraduate year (see Table 15). These included perceived preparedness for living and practice in a range of settings and preferences for future training and practice location. This enabled the researcher to identify any changes in reported attitudes or behaviour, in the year prior to being exposed to the intervention, as well as throughout the intervention period.

3.5.3.2.4 Statistical Note

To assess any significant changes in decision making and choices that occurred prior to and during the intervention year, a Wilcoxon matched pairs, Exact Monte Carlo test was executed. This test is for non-parametric data and was used, as the sample size was less than 30. In addition, an examination of the data indicated that responses were not symmetrically distributed. The lack of symmetry could not guarantee normality. This was the only statistical test used in this study.

3.5.4 Interpreting Data in Context

A coding system was implemented in phase three to allow data to be interpreted in context. In this phase, a four character code has been used. The code 'WXYZ' represents a respondent where 'W' indicates the respondent's position, 'X' identifies the Hospital, 'Y' represents an individual and 'Z' distinguishes between mid-trial and end-trial comments. This coding system is outlined in Table 16.

Table 16. Coding system for phase 3.

Code	**Corresponds to:**
W	DCT - Director of Clinical Training JD - Junior Doctor MEO - Medical Education Officer
X	1 - Hospital 1 2 - Hospital 2 3 - Hospital 3 4 - Hospital 4
Y	An individual at that hospital numbered from 01 to 11
Z	Comments were made at: M - Mid-trial E - End-trial

For example, the code JD202E relates to a junior doctor at Hospital 2, who was the second individual interviewed at the end of the trial.

3.6 RESEARCH QUALITY

There are different approaches to quality in case study research. A minimum of four conditions must be satisfied to ensure quality and strengthen the outcomes of case study research [128]. The four conditions are construct validity, internal validity, external validity and reliability [128]. This approach has been adopted here.

3.6.1 Construct Validity

Construct validity refers to the ability of the study design to measure the concepts being investigated [128]. A key characteristic of case study research is therefore the use of multiple sources of evidence [128, 133].

Qualitative data were collected through semi-structured interviews from multiple sources including junior doctors, DCTs, MEOs and other stakeholders. In interview data construct validity is increased by ensuring that the interviews actually represent the views of the participants. A summary of the interview results was distributed back to participants for their comment. There were no concerns raised and thus the data collection and analysis processes were valid.

Quantitative data were collected from DCTs and MEOs, and also from junior doctors through questionnaires distributed at specific points in time throughout the project. The junior doctor questionnaire was piloted to ensure validity. Some changes were made to the questionnaire (see 3.5.3.2.2).

Collection of information from multiple data sources enabled study concepts to be analysed from various perspectives. This allowed the strength of connections between the concepts and what actually occurred to be measured. Triangulation of the data identified the common themes.

As a further check on construct validity the overall findings were made available to all participants. Participants were asked to check if data had been reported accurately and fairly. The draft results were communicated to participants through presentations or reports. There were not any concerns raised regarding the accuracy of the data.

3.6.2 Internal Validity

Internal validity is a concern in explanatory case studies which can be addressed in the data analysis stage [128]. It focuses on cause and effect relationships. Pattern matching and explanation building can be used to distinguish results as being caused by particular factors and not other false relationships.

This study aimed at assessing strategies to enhance the preparedness of junior doctors for rural practice, therefore internal validity was important. A number of possible threats included sample bias, attrition rates and external influences. Sample bias was minimised by selecting interviewees with varying associations to the topic being studied. Strategies implemented to minimise other threats in this study included not asking leading questions and allowing participants to review results to ensure the accuracy of explanations. Reminders and incentives were employed to reduce attrition rates.

It is difficult to minimise the effect of external influences. Data were collected on some aspects, for example rural background, to determine any effect these may have had on the participants. Data were also collected from the same cohort of junior doctors in the year prior to the intervention to assist in identifying any prior experiences that may have possibly influenced the results. These were analysed in conjunction with data collected prior to and after the intervention period.

3.6.3 External Validity

External validity is the degree to which the findings of a study are generalisable to the broader population [128]. The external validity of this study is supported through the use of replication logic. That is, the

methodology is repeated in more than one site. The conduct of multiple-case studies is considered to make the outcomes more robust. In this study four hospitals or cases were utilised. The same methodology was implemented in each case study hospital. Trialing the program in more than one site supports the generalisability of the outcomes back to the broader population, as it has already been tested in four different environments. Data were also collected from multiple sources to assist in ensuring the external validity of the results. Collecting data from the DCTs, MEOs and junior doctors and the identification of the common themes from all of these sources provided strong key results.

3.6.4 Reliability

The goal of reliability is to minimise the biases and errors in a study and allow the procedures to be replicated to arrive at the same results [128]. Procedures were documented at two levels to ensure reliability within the study. Firstly, the processes outlined in this chapter describe clearly the methodology undertaken in this study. These could be repeated easily to replicate the study. Secondly, a case study protocol, documented in the 'Guidelines for On-Site Delivery,' was developed to guide implementation of the program across the four case study hospitals. These protocols ensured a transparent and accountable method was undertaken in each of the hospitals and would enable another researcher to replicate the study and follow the same pathway to the same conclusions. In addition, data have been recorded, analysed and stored using a systematic process which would enable auditing by others.

A summary of how each of the four conditions was satisfied through the design and implementation of this study is presented in Table 17.

Table 17. Study characteristics addressing the four tests of good case study design.

Quality Test	**Study Characteristics**
Construct validity	• Multiples sources of data were used (including junior doctors, Medical Education Officers, Directors of Clinical Training) • Participants were able to review and provide feedback on results
Internal validity	• Pattern matching and explanation building used • Selecting interviewees with varying associations to the topic being studied • Ensured leading questions were not asked • Participants able to review results to ensure accuracy • Reminders and incentives used to encourage good response rate • Possible external factors investigated
External validity	• Replication logic used • Case studies were undertaken in four sites • Data from multiple sites and multiple sources strengthened outcomes • Sample representative of population
Reliability	• Methodology for the research was defined • A case study protocol (Guidelines for On-Site Delivery) was developed to ensure that the program was implemented uniformly in each of the hospitals • A data collection framework ensured data were collected and analysed consistently

This chapter has outlined the methodology undertaken in the various phases of this study. The following five chapters outline the results of data collection and analysis.

CHAPTER 4: PHASE 1 RESULTS - DEFINING THE ISSUES

4.1 INTRODUCTION

This chapter presents the results of data collected from the key informant interviews in phase one. The chapter defines the issues and difficulties experienced by junior doctors when undertaking practice in rural and remote communities.

4.2 DEMOGRAPHICS OF KEY INFORMANTS

Of the 23 key informants approached, 19 were interviewed. The positions of respondents were junior doctors, rural practitioners, Directors of Clinical Training and Medical Education Officers, medical administrators and academic rural practitioners. All key informants who were not junior doctors had either a direct or indirect involvement with them or rural practice in some way. The Directors of Clinical Training and Medical Education Officers were involved in preparation and support, and medical administrators set and implemented policies directing junior doctors to undertake rural practice. There were two groups of rural practitioners. One group comprised those who worked currently in rural areas and were replaced by the junior doctors when they went on relieving duties. The other group comprised academic practitioners who had been involved by delivering education or undertaking research in the area. This enabled multiple perspectives to be obtained on the issues being explored.

Of the 19 respondents, over half were male (63.2%, n=12) and nearly three-quarters were medically qualified (73.6%, n=14). The non-medically qualified respondents held positions as educators or administrators. Over half of the medically qualified respondents had practised in a rural or remote community (57.1%, n=8), including all of the junior doctors interviewed (JD05, JD07, JD10, JD11, JD13).

4.3 RESULTS

The key informants with experience practising in rural or remote areas reported having both positive and negative experiences. Generally, the more

experienced medical practitioners were positive about the time they had spent in the rural and remote areas (ARP01, ARP16, RP02, RP18, DCT04). However, a few junior doctors also reported positive experiences (JD05, JD07, JD10). These practitioners expressed the value of taking extra responsibility in smaller hospitals, which had forced them to become resourceful, had increased their learning and had enabled them to be more involved with patients than they would in a larger hospital. One academic rural practitioner stated:

> 'I think the diversity of the role and that lots of interesting, exciting urgent things happened. I think I quite enjoyed being responsible for more than what's possible in a bigger town and I enjoyed the team work and the people working together and making health work' (ARP16).

Another respondent commented:

> 'You can learn a lot from the country, you have that extra step where you take responsibility and do things and you sort of become a real doctor' (DCT04).

There were fewer negative experiences and most comments in this area were made by junior doctors who were the less experienced medical officers (JD05, JD07, JD10, DCT04). The newer doctors were still making the transition to becoming independent practitioners and had not yet come to terms with the level of independence and the high expectations that were required of them when practising in rural and remote practice. The respondents reported feeling a lot of anxiety not knowing what to expect:

> 'Well certainly it was very frightening, especially before I got there for the first time' (JD05).

In many cases, it was reported that there was no supervision, and some challenging patient presentations. Upon reflection respondents acknowledged that they had learned much while in rural practice, but recognised that most

learning was unsupervised and was coupled with a lot of 'fear'. One respondent commented:

> 'I've had to deal with all sorts of horrendous situations… I'm glad I've done it in a way but I think it would have been nice to have got that experience without being sent to the middle of nowhere by myself' (JD10).

4.3.1 Environment of Rural and Remote Practice

Several respondents were critical of the fact that junior doctors were sent out into rural and remote practice in their second postgraduate year (ARP01, ARP16, DCT09, JD10, MA17, RP18, MEO19), particularly to 'single doctor' towns. However it was acknowledged by respondents that this happened regularly due to shortages in the workforce. In some cases junior doctors requested to be placed in solo-doctor communities, but this was reported to be an unusual situation (MA17). One respondent stated that doing this could result in a lot more harm than good, and that junior doctors should not be sent into such communities. Another respondent agreed that, in particular, junior doctors should not be sent to solo-doctor communities:

> 'I still deplore the idea that scholarship holders should have to go out to [Remote Centre 2] and they should certainly not be going into solo unsupervised places' (DCT09).

It was recognised that this situation was not ideal as junior doctors had limited knowledge, skills and experience, and little or no on-site supervision and support. Some respondents were adamant that junior doctors should not be sent out into rural practice at all, or have completed a minimum of at least two years in a hospital setting (DCT09, RP18). During this time, opportunities to learn the essentials should have been provided.

Despite the fact that junior doctors were sometimes sent out earlier than was ideal, the second postgraduate year was identified as a good time to ensure junior doctors were competent in core skills for rural practice and had been

exposed to a range of experiences. This year could prepare junior doctors for rural practice later in their careers. One respondent commented:

> 'What I'm inclined to advocate is two things, one that they be rendered competent and capable in basic medical skills, the ABCs if you like… and the second is… a basic set of clinical competencies, not only just procedural skills, I'm talking about the whole gamut of clinical competencies, that we define to be necessary for each junior doctor that we would send to rural practice, depending upon their (sic) postgraduate year' (MA03).

4.3.2 Issues and Difficulties

All respondents identified a range of issues or difficulties that were faced by junior doctors who undertook rural practice. Analysis of the interviews was undertaken utilising Nvivo qualitative data analysis software which facilitated a systematic coding process to be undertaken. This process was outlined in the methodology chapter. The common themes in each interview were identified, coded as 'nodes' and grouped into 'trees' to determine the strong messages emerging from the data. Responses were grouped into six main themes:

1. Lack of overall preparedness;
2. Limited clinical experience;
3. Inadequate support and supervision;
4. Other professional issues;
5. Lack of relevant education and training; and
6. Personal and other general issues.

4.3.2.1 Lack of overall preparedness

Just under half of the respondents made comments surrounding the general lack of preparation that junior doctors received before going into rural practice (DCT04, JD05, JD07, MA03, MA14, MA15, MEO12, RP02, RP18). This included not knowing what to expect in clinical practice, the degree of responsibility required in practice and managing staff, greater workloads including the obligation to undertake private general practice, living in small

towns and Indigenous communities, and just not knowing what sort of situations they would encounter. One administrator commented:

> 'Junior doctors without a doubt feel an overwhelming sense of awe and fear… it tends to be a fearful experience and they wonder about their preparation and competence to handle what's going to present to them' (MA03).

4.3.2.2 Limited clinical experience

Limited clinical experience or skills was identified by over a third of respondents as something that caused difficulties for junior doctors (ARP01, ARP16, DCT09, MA17, MEO08, MEO12, RP18). It was identified that often they did not possess emergency and procedural skills. It was also identified that having to deal with major trauma and obstetrics was an issue. The respondents claimed that junior doctors were being 'thrown out of their depth' and often had to manage situations in which they had no previous exposure. A rural practitioner stated:

> 'They're not really ready to go in the first place, with their level of knowledge and experience' (RP18).

4.3.2.3 Inadequate support and supervision

Lack of support and supervision was an issue that was raised by all respondents. There were generally few, or sometimes no, senior medical officers based in the same towns where junior doctors were sent to relieve rural practitioners. Isolation from senior consultants and experienced medical officers was the primary problem. Junior doctors were required to take on a much higher level of decision-making than with which they were usually comfortable (DCT04, JD11). No on-site supervision made junior doctors become more reliant on telephone support. Several respondents identified that the telephone was used to access clinical support (DCT04, DCT06, DCT09, JD05, JD13, MA03, MA15, MEO12, MEO19, RP02). This level of support was not seen to be as useful as having someone personally available. A Director of Clinical Training commented that:

> ‘All the telemedicine and audio-medicine and what have you in the world doesn’t make up for having somebody else on the ground who can put their (sic) hands on the patient’ (DCT06).

Advice via telephone was accessed from two main sources, from consultants at the junior doctor’s primary hospital or from medical staff of the Royal Flying Doctors Service (RFDS). Another issue raised was confusion as to whom the junior doctor should call in some cases, particularly after hours (MA15). There was also a feeling of anxiety in anticipating whether the person called would be responsive. A comment was made that senior staff were quite often overworked and not able to provide as much support as was required.

It was identified that support was sometimes available from other doctors in the town but in some of these situations other issues arose. One respondent stated that a significant proportion of the rural and remote health workforce comprised International Medical Graduates (ARP01). Some of these practitioners were reported to be inadequately trained, and positioned as the direct supervisors of relieving junior doctors. It was noted that some hospitals had continuous troubles recruiting doctors, including problems recruiting senior staff. In another case, it was reported that the quality of supervision provided by a senior clinician was poor (DCT04). The junior doctor had no respect for the supervisors’ clinical practice as it conflicted with what had been taught at medical school and his/her beliefs of what constituted good practice.

Two respondents mentioned that other clinical staff, in particular nurses, were supportive (JD05, JD07). However, this was confounded by reports that again, there were difficulties in recruiting nurses and therefore a full complement of staff for back-up was not necessarily available.

4.3.2.4 Other professional issues

A range of other professional issues was identified by respondents. The issues related to the workforce and resulting workloads. Quite often junior doctors were required to work in solo-practices, undertake private general practice and

also provide on-call services without any relief (DCT06, DCT09, JD10, JD13). One respondent recounted:

> 'The biggest problem I've had is having to practise in communities by myself which are two or three doctor communities… just not getting any sleep, working twenty four hours a day, seven days a week, not getting a break' (JD10).

Other difficulties included lack of pathology and radiology services (JD05, JD11, JD13), not understanding referral and evacuation processes (JD11, MA14, MA15), limited access to clinical information (DCT06, RP18), not knowing local procedures and protocols (MEO12), and communication facilities not always being readily available in the country (MA03). These issues presented challenges and affected the management options that were available.

4.3.2.5 Lack of relevant education and training

Approximately one third of the respondents identified issues relating to education and training (ARP01, JD11, MA15, MA17, RP02, RP18). These issues could be divided into two levels. The first related to education and training to prepare junior doctors for rural practice; and the second pertained to ongoing professional development and the pursuit of vocational training toward specialist pathways.

The respondents identified that limited education and training was being provided to prepare junior doctors for rural practice (MA15, RP02, RP18). This supports the issue already raised in relation to junior doctors not possessing appropriate skills. One respondent stated:

> 'There's a lack of education from their primary allocation in the first or second year to get them ready to go out and work in those rural communities' (MA15).

More respondents had concerns regarding difficulties junior doctors faced in accessing professional development and accredited positions for vocational training in rural areas (ARP01, JD11, MA17, RP02). Limited positions were available. A medical administrator stated:

> 'At the moment we're seeing a bigger issue regarding their achievement of postgraduate qualifications or college qualifications. So they have difficulty sometimes in being able to be in accredited positions for vocational training' (MA17).

The lack of accredited positions meant that junior doctors in rural areas felt disadvantaged in relation to their metropolitan counterparts. One respondent stated that ongoing education programs and participation in courses would assist in minimising this disadvantage. The rural practitioner stated:

> '[junior doctors would] not feel that their professional development is lagging behind and they're not missing out on opportunities that the guys might have in metropolitan areas' (RP02).

4.3.2.6 Personal and Other Issues

All respondents but two mentioned that junior doctors faced personal issues while undertaking rural or remote practice. The biggest concern raised was isolation and distance from partners, family and friends (ARP01, ARP16, DCT06, JD05, JD07, JD11, MA03, MA14, MA17, MEO08, RP02, RP18). A lack of social support while relieving was a problem. Partners wishing to follow their own career paths and availability of schooling for children were factors that contributed to the problem. Some respondents identified that for those on longer placements, whose family did accompany them, difficulties were experienced in keeping the family happy in the rural environment. One respondent stated:

> '… when they do take their spouses and families with them… that adds to the pressure of things that they must resolve and sort out, to have the family happily based in a rural community' (MA03).

A few respondents identified personal safety and loneliness were issues, particularly for females (DCT09, MA03, MEO12). These issues were more significant generally in the smaller, more remote communities. Respondents reported that for safety reasons it was not advisable for a single female to go out walking around the streets on her own.

Adjusting to living in small communities was another issue. People who were accustomed to living in big cities were thought to find rural communities quite peculiar. Towns where 'everybody knew everybody', and 'everyone knew everyone else's business,' were reported to be quite confronting socially (DCT04).

A few respondents highlighted a number of other issues. These included not understanding community issues when working in Indigenous communities (MEO12, MEO19, RP18), the lower quality of accommodation (DCT06, JD07), a lack of awareness regarding local transport (MA03), personal objections to terms or relieving placements allocated (ARP01), problems with recruitment and retention (RP18), and knowing the 'unwritten' rules for driving on country roads (MEO12).

Overall, junior doctors were unprepared both professionally and personally for practice in rural and remote communities. The predominant issues were lack of on-site support and supervision, limited clinical experience and a lack of relevant education and training.

4.3.3 Competencies for Rural Practice

Respondents were asked to identify the core competencies that were required by junior doctors. The first issue raised that influenced this, was the length of time in which junior doctors were going to be in the rural community. It was identified that for junior doctors undertaking only short relieving periods, it was most important that they had emergency skills, to keep people alive until further help arrived. One respondent commented:

'… having junior doctors confident in their emergency skills before they start in the rural areas is paramount. Everything else will be useful but it won't particularly save a life' (JD11).

A greater range of skills relating to continuing care and general practice were required for those who were recipients of bonded rural scholarships [18], and any others who would be going into rural practice for longer periods. Furthermore one respondent stated that if the junior doctor was going to be based in a practice on his/her own, then a higher level of skills were needed. The DCT commented:

'…if they're on their own, then the sorts of demands on their skills tend to be high.' (DCT06)

The respondents identified a range of competencies and skills. Some mentioned that junior doctors should be broadly competent in certain disciplines (see Table 18).

Table 18. Disciplines in which junior doctors should possess competency.

Discipline	**Interview References**
Emergency Medicine	ARP16, DCT04, DCT06, JD07, JD11, MA17, MEO12, RP02, RP18
Obstetrics and/or Gynaecology	DCT04, DCT06, DCT09, JD05, JD07, MEO08, MEO12, RP02
Paediatrics	DCT04, JD05, JD07, MA14, MA17, MEO12, RP02
Anaesthetics	JD05, JD07, MEO12
Intensive care	JD07, RP18
Psychiatry	MA17
Orthopaedics	DCT06

Source: Interviews with key informants.

Some respondents stated broadly that junior doctors needed to be competent in generic skills (ARP01), and basic clinical skills (JD07, MA03, MEO12). Several stated that competency in basic procedural skills was required (ARP16, DCT06, MA15, MEO12, RP18). Other generic skills outlined were examination of the patient (ARP01), making a diagnosis (ARP01, MEO08), ordering relevant investigations (ARP01), appropriate prescribing (ARP01, JD07, MEO08, RP18), pathology (MEO12), ability to read x-rays (DCT09, JD13, MEO12), and interpretation of ECGs (JD10).

A range of more specific conditions and illnesses were identified by respondents. Responses have been divided into four categories: emergency presentations; non–emergency presentations and continuing care; other professional skills and abilities, and personal attributes. Table 19 outlines areas of competency and Table 20 details professional skills, abilities and attributes.

Table 19. Areas of competency required for rural practice.

Emergency Presentations
• Basic life support including resuscitation (DCT04, DCT09, JD05, MEO08, RP02) • First aid, trauma (out of hospital) (JD13, RP02, RP18) • Trauma (in-hospital including multiple) (DCT06, JD13, RP18) • Advanced life support (DCT04, DCT06, DCT09, MEO12) • Intubation (ARP16 JD10, MA17, MEO12, RP18) • Airway management (DCT04, MA17, RP18) • Acute myocardial infarction / arrest protocols (JD07, JD10, JD13, RP18) • Cardiac conditions (DCT04, RP18) • Chest drains (RP18) • Spinal injuries (JD13) • Head injuries (DCT06) • Severely ill people (MA14, MA15) • Anaphylaxis (RP18) • Laryngeal mask (JD10) • Complicated births (DCT06)
Non–Emergency Presentations and Continuing Care
• General practice skills (MEO12, RP18, JD11) • Fracture management (DCT04, DCT06, DCT09, JD13, MEO12) • Normal births (ARP16, DCT04, JD13, MA14) • Minor surgery and suturing (DCT06, DCT09, JD13) • Plaster techniques and splinting (JD13, MEO12, RP18) • Inserting a cannula and drips (JD10, RP18) • Intraosseous needles (JD10) • Intravenous lines (ARP16) • Taking bloods (RP18) • Sedation (RP18) • Fluid delivery and rehydration (RP18) • Haemorrhage control / replacing blood loss (RP18) • Wound management (MEO12) • Eyes injuries and use of the slit lamp (MEO12) • Minor injuries (JD13) • Immunization (JD13) • Stabilization of patients for transfer (MA15) • Acute medical cases (RP18) • Antenatal examinations (MA14) • Depression / mental illness (MA17) • Marine stings (MEO12)

Source: Interviews with key informants.

Table 20. Skills, abilities and personal attributes required for rural practice.

Other Professional Skills and Abilities
• Ability to recognise one's limitations / knowing when retrieval is necessary (ARP01, JD11, MA03, MA15, MA17) • Knowledge of local support services available (MEO12, RP02) • Developing a support network / contacts for help (MA03, MA17) • Ability to access clinical information including electronic information (MEO08, MA15) • Professional safety via monitoring working hours (MA03) • Risk Management (MA03) • Ability to handle complaints (MA03)
Personal Attributes
• Excellent communication skills (ARP01, DCT09, MA15, JD11, MA17, RP02) • Good team worker (JD11) • Confidence in skills (JD10) • Courage (JD11) • Adapting to living in small communities (MA17)

Source: Interviews with key informants.

A few respondents also noted that relevant competencies for rural practice could be attained by completing the Emergency Management of Severe Trauma Course (DCT04, JD11, RP18), the Pre-Hospital Trauma Life Support Course (JD11, RP18) and the Emergency Life Support Course (MEO08).

4.3.4 Current Education and Training Programs

There is currently a focus on addressing rural issues at an undergraduate level through the development of integrated curricula, decentralisation of training and increasing rural exposure through placements [30, 32-34]. Key informants were asked whether current hospital-based programs for junior doctors had followed this trend. Over half of the informants were directly involved in coordinating or participating in education and training programs for junior doctors (DCT04, DCT06, DCT09, JD05, JD07, JD10, JD11, JD13, MEO08, MEO12, MEO19).

It was reported that, generally, formal education activities were scheduled for one to two hours per week and held around lunchtime. Attendance rates were variable. The sessions were usually didactic and focused on development of knowledge. Specific curricula had generally not been developed. Topics were based only on the interests of the particular consultant presenting the session. One respondent did report undertaking a 'needs assessment' that involved junior doctors on their return from rural practice, local consultants and their education committee (MEO19).

One hospital of the five involved in the study provided regular workshops that aimed to facilitate junior doctors attaining practical skills which would assist them in preparation for rural practice (MEO19). These were held five times per year on a weekend. It was reported that attendance at these was good. Overall, the majority of respondents involved in education and training did not think that current programs were adequately preparing junior doctors for rural or remote practice (DCT04, DCT06, JD05, JD10, JD11, JD13, MEO08, MEO12).

4.3.5 Exploring Ways to Improve Preparation

From the interviews it was apparent that junior doctors were still required to undertake country relieving in their second postgraduate year. Similar to the issues identified in the literature, there were a number of barriers influencing the ability of junior doctors to practise competently and confidently when working in rural and remote communities. Minimal clinical experience, lack of supervision and on-site support, uninformed expectations, limited access to relevant education, and the influence of isolation resulted in an overall lack of preparation both professionally and personally. Competencies for rural practice were identified but hospital-based education and training programs delivered in the second postgraduate year were doing little to assist junior doctors to attain clinical knowledge and skills in preparation for practice.

This led the researcher to question respondents about the nature of appropriate strategies which would support junior doctors obtaining these competencies

and assist preparation for rural practice. The Postgraduate Medical Education Foundation of Queensland's accreditation guidelines outline a number of strategies that should be in place within hospitals to support junior doctors [59]. These strategies were used as a basis for exploring how preparation for rural practice might be achieved. Adaptation of current strategies would enhance the prospect that rurally focused activities could be delivered feasibly within the hospital setting. Questions probed the content and format of such strategies. Data were triangulated to find the common themes from the various sources. Four themes emerged. These were:

1. Term allocations
2. Ongoing education
3. Skills and procedural courses
4. Orientation to rural practice

4.3.5.1 Term Allocations

In the first postgraduate year, compulsory terms of approximately 10-12 weeks duration are set by the Queensland Medical Board. These terms are to undertaken in the areas of medicine, surgery and emergency medicine [59]. Respondents were asked to identify the top four priority terms for second year junior doctors, who would be undertaking country relieving or rural practice. A list of terms commonly available in the region was provided as a prompt (see Appendix B). Of the 19 respondents, 17 identified both obstetrics and gynaecology, and paediatrics and as priority terms. Terms in anaesthetics including intensive care, and emergency were seen as the next most important (see Table 21). Responses correlated with findings collected earlier in the interview relating to competencies (see 4.3.3).

Table 21. Priority terms for junior doctors in their second postgraduate year.

Discipline	Number *	Reference to Interviews
Obstetrics / Gynaecology	17	ARP01, RP02, MA03, JD05, DCT06, JD07, MEO08, DCT09, JD10, JD11, MEO12, JD13, MA14, MA15,
Paediatrics	17	ARP01, RP02, MA03, DCT04, JD05, DCT06, JD07, MEO08, DCT09, JD10, JD11, MEO12, JD13, MA15,
Anaesthetics / ICU	13	RP02, DCT04, JD05, DCT06, JD07, MEO08, DCT09, JD10, JD11, MEO12, MA17, RP18, MEO19
Emergency	12	RP02, MA03, DCT04, JD05, DCT06, JD07, JD10, MEO12, MA14, ARP16, RP18, MEO19
Psychiatry	7	ARP01, MEO08, JD11, JD13, MA15, MA17, MEO19
General Practice	3	JD13, MA14, MA15,
Indigenous Health	3	MA03, DCT04, MA14,
Medicine	3	ARP01, DCT09, RP18,

Source: Interviews with key informants.

* One respondent identified only three terms.

Similar reasons were stated for the selection of these priorities. Respondents identified that junior doctors had generally not received much experience in paediatrics and obstetrics prior to their second postgraduate year and that presentations in both of these disciplines were common in rural and remote practice. It was also highlighted that emergencies in these disciplines were common and needed to be dealt with immediately. One respondent commented:

> 'Obstetrics and gynaecology, and paediatrics - I think perhaps because they are the two that are of the most concern to junior doctors. They're the ones they feel most out of depth with, they're the ones where things can go wrong very quickly and they can find themselves out of their depth. They're also probably the two areas that are the most litigious outside of surgery and I think that that weighs quite heavily on their minds' (MA15).

Emergency medicine was identified as a priority because in these terms junior doctors could be exposed to a range of presentations across many disciplines. Competencies in anaesthetics were identified as a key requirement to keep people alive, particularly skills in airway management and life support. Psychiatry was also identified as a growing issue in rural and remote communities and one in which junior doctors had generally had little exposure.

A limitation with this strategy was recognised. When completing designated terms junior doctors may still not be exposed to a broad range of conditions and illnesses that will provide them with the opportunity to develop the skills that were necessary. One respondent stated:

> 'Even if a junior doctor is given a set of prescribed terms that we consider to be possible, there's no guarantee that during those terms they're going to have exposure to the range of conditions and circumstances that will adequately prepare them in that discipline.' (MA03).

4.3.5.2 Ongoing Education

Respondents were asked to comment on the feasibility of providing an ongoing formal education program. Despite a requirement to provide an education program as part of accreditation, an assessment of current programs identified there was much variability in quality. One respondent suggested that four to six hours per week would be ideal (ARP01), however the majority reported that one to two hours per week was realistic and feasible (ARP16, DCT04, DCT06, JD07, JD10, JD11, JD13, MA14, MEO12, MA15, MEO19, RP02).

An alternative suggestion was that workshops could be held throughout the year either over a week or on a weekend (DCT09, MEO08). Another respondent suggested that junior doctors should be released to participate in courses that were currently available and formal education sessions based within the hospital setting should supplement this (MA15). However, it was noted by some respondents that junior doctors encountered difficulties that

blocked them from participating in courses including funding constraints and not being able to be released from their hospitals.

Forty-six topics extracted from the program currently in place in the researcher's hospital were provided as a basis to assist in the identification of priority topics for an ongoing educational program (see Appendix B). This program focused on preparation for practice within the hospital-setting and also in the remote communities where there was less support and fewer services available. The majority of topics fell into the disciplines of emergency medicine, paediatrics, medicine and obstetrics and gynaecology.

The majority of respondents identified that most of the topics were appropriate to assist postgraduate year two doctors prepare for rural practice. Again, these topics matched those which were identified in the earlier questions investigating areas in which junior doctors should be competent (sections 4.3.3 and 4.3.5.1).

There were very few topics that respondents argued should be left out. One of these was arterial blood gas analysis, as generally there were not blood gas machines available in rural and remote centres (ARP01, DCT09, JD05, JD07, JD13). Another was communicating with Indigenous patients which some of the junior doctors stated was not much different to communication with non-Indigenous patients (JD05, JD10, JD13).

Some additional topics were identified. Topics highlighted by more than one respondent included management of the sick child (MA03, RP02), abscess management (ARP01, DCT04), child abuse and protection orders (DCT06, JD11), and poisoning and envenomation (DCT04, RP02).

4.2.5.3 Skills and Procedural Courses

Courses were identified that aimed to facilitate doctors developing emergency and procedural skills in addition to preparation for rural practice (see Table 22).

Table 22. Courses identified as useful for rural preparation.

Course	Reference to Interview
Advanced Paediatric Life Support	ARP01, ARP16, DCT04, DCT09, JD05, JD07, JD11, JD13, MA03, MA14, MA15, MA17, MEO12, MEO19, RP02, RP18
Early Management of Severe Trauma	ARP01, DCT04, DCT06, DCT09, JD05, JD07, JD11, MA03, MA15, MA17, MEO12, RP02, RP18
Pre-Hospital Trauma Life Support	ARP01, ARP16, DCT04, DCT06, MA03, MA14, MA15, MA17, MEO08, RP02, RP18
QRMSA's Emergency Medicine	ARP01, ARP16, DCT04, JD10, JD11, MA03, MA15, MA17, MEO12, MEO19, RP18

Source: Interviews with key informants.

The courses identified by the respondents as most useful were the Advanced Paediatric Life Support (APLS) and Early Management of Severe Trauma (EMST). The APLS course was reported to be very good, in particular when preparing for emergencies. The next most useful courses, supported by just over half of the respondents, were the Pre-Hospital Trauma Life Support (PHTLS) course and the Queensland Rural Medical Support Agency's (QRMSA's) Emergency Medicine course. The two courses identified earlier in the interviews, that would assist junior doctors obtain competencies for rural practice, were EMST (DCT04, JD11, RP18) and PHTLS (JD11, RP18). These were amongst those rated highly by the respondents.

Over half of the respondents had not heard of the QRMSA's Rural Preparatory Program which specifically targeted junior doctors (ARP16, DCT04, DCT09, JD05, JD07, JD10, JD11, JD13, MEO12, MEO19, RP18). Of those who were familiar with this course, there were mixed responses regarding its quality. Some respondents regarded aspects of it as useful (ARP01, RP02, MA17). However, others reported that it still needed further development (ARP01, MA03). There were also issues with junior doctors being able to access the course (MA14, MA15).

Several respondents identified that training in cultural awareness was essential for rural preparation (ARP01, ARP16, DCT04, DCT06, DCT09, JD13, MA03,

RP02). The programs provided by Queensland Health were identified as not useful (ARP01, ARP16, JD05, JD10, JD11, MEO12, MEO19). One respondent noted:

> 'There are better courses but I think it's absolutely essential' (ARP01).

Four other courses were identified by respondents as useful for junior doctors in their preparation for rural practice. These were: the Advanced Life Support in Obstetrics (ALSO) presented by Women's Hospitals Australia; Emergency Life Support offered by the Australian College of Emergency Medicine; Communication Workshops presented by the Bayer Institute; and Patient Safety workshops which were offered by Queensland Health. The Emergency Life Support course was also available locally at one regional hospital (MEO08).

It was reported that the Advanced Life Support in Obstetrics course was also very good (RP02, RP18). One respondent who had participated in this course reported that it assumed participants had done some obstetrics prior to attending. It was questioned as to how much benefit junior doctors would receive from participating in this course as few had experience in obstetrics (RP18).

4.3.5.4 Orientation to Rural Practice

Orientation for junior doctors was suggested to occur at two points in time: first when they arrived at their base hospital, and second, when they were about to start their rural placements. The data presented here focus only on respondents' comments addressing orientation for rural placements.

One respondent stated that the comprehensiveness of orientation activities should depend on the length of intended practice. The Medical Administrator stated:

> 'It has to be in proportion to the length of time they're going to be there and the level of support which is available when they arrive' (MA03).

It was suggested that those staying a few days, only needed to be oriented to the 'basics' and have a local contact nominated to provide advice or assistance when required. However, for those staying for longer periods, it was reported that a more substantial orientation was needed.

Respondents suggested that orientation to the rural placement should occur in two stages. Some information should be provided before junior doctors left for the rural placement, but close to departure date. Further information should be provided on the day they arrived in the rural centre before starting practice (ARP16, MA17, RP02). Few respondents suggested orientation should last for a few days to a week (ARP01, DCT04, MEO08) and could include educational activities (DCT04, MEO08). Most respondents indicated that, realistically, only a small amount of time would be available and, as a result, only the essentials should be included in formal activities (DCT09, JD10, JD11, MA15, MEO12).

Respondents were asked to identify what topics or information they thought should be included in orientation. Numerous responses were received and are presented in Table 23. Topics were divided into four categories: those relating to health services and clinical practice, the community, education and other general information.

Table 23. Topics or information suggested for orientation.

Health Services
• Services and support available locally (DCT04, JD11, JD13, MA15, RP02) • Resources available - staffing levels, location of equipment, hospital tour (DCT09, JD07, MA03, MEO08, MEO19, RP02, RP18) • Emergency procedures / retrieval processes (ARP01, JD07, MA03, MA17, RP02, RP18) • Professional networks / key contacts (ARP16, JD07, MA15, MA17, MEO08, RP18) • Referral procedures to specialists (ARP01, JD11, MA14, MEO08) • General practice issues - rights, billing, indemnity, using Medical Director (MA15, MEO08, MEO19, RP02) • Local practice / disease profile (ARP01, JD07, JD13, MA14, RP18) • Health Department structures, policies and procedures (MA14, MA17) • Human Resources issues – timesheets and pay processes (DCT09, MA17) • Clinical handover (MA03, MA15, MA17) • Duties and hours of work (MEO08, RP18)
Community Focused
• Facilities and services available (and pictures) such as pubs, shops, banks, transport, accommodation, internet, maps (DCT04, DCT06, JD10, MA15, MA17, MEO08, MEO19) • Culture – dynamics, history, politics, key contacts, names of Indigenous elders, how to integrate, how to access groups and services (DCT09, MA03, MA15, RP02, RP18) • Cultural awareness (ARP01, JD11, MA14, MA17, RP02, RP18) • Population demographics (JD10, JD13, MA14, MA15)
Education Focused
• Details of educational activities available locally (ARP01, MA15) • Information on accredited posts for vocational training (JD13, MA15)
General
• Personal support options – developing social networks, crisis and help lines, contacts available 24 hours a day / 7 days a week, survival pack (ARP01, ARP16, DCT04) • Personal safety issues - levels of danger, diffusing violent situations (ARP01, DCT04, JD10) • Expectations and time to prepare psychologically (DCT06, MEO12, MEO19) • How to think like the 'boss' doctor (taking charge in single doctor practices) (JD10) • Debriefing and stress management (DCT09, MEO12, RP02) • Fostering mentors for guidance/support (MA03, MEO08, MEO19) • Legal aspects – police statements, Government Medical Officer role (ARP16, JD10) • Lifestyle, climate, tourism, road safety (ARP01, DCT06, JD11) • Living in the country, settling, social options (ARP01, DCT06, MEO19) • Risk management (MA03) • Time management (RP02) • Relationship management and counselling (RP02) • Managing own lifestyle – alcohol and drug use (ARP01) • What questions should be asked and what tasks should be done upon arrival (MEO19)

Source: Interviews with key informants.

4.4 SUMMARY

Data collected in phase one confirmed that postgraduate year two doctors were still required to undertake practice in rural areas and faced a number of

difficulties. Minimal clinical experience, lack of supervision and on-site support, uninformed expectations, limited access to relevant education, and the influence of isolation resulted in an overall lack of preparation both professionally and personally. Hospital-based education and training programs were not adequately preparing junior doctors with the required clinical competencies for practice. Core competencies were defined for junior doctors who intended to, or who would be sent to practise in rural and remote communities. Strategies to achieve these competencies were also explored based on adaptation of the PMEFQ accreditation guidelines. Appropriate term allocation, ongoing education, participation in relevant courses and orientation were strategies identified that would assist junior doctors develop competencies for rural practice.

CHAPTER 5: PHASE 2 RESULTS - DEVELOPING AN INTERVENTION

5.1 INTRODUCTION

A review of current programs, workshops and curricula, as outlined in the literature review, identified that only limited support was available to prepare early postgraduate medical officers for rural practice. Data from phase one confirmed that postgraduate year two doctors were still required to undertake practice in rural areas. While there were no short term solutions that would overcome workforce issues, it was necessary to put systems in place to protect junior doctors from experiences that may do more harm than good. Phase two utilised the research findings from earlier components of the study to inform the development of a program that was appropriate for those at the early postgraduate level; was oriented toward rural practice, and could be delivered feasibly within the hospital-setting. The result was the *Supporting Junior Doctors Going Bush* Program.

5.2 A PREPARATORY PROGRAM

The *Supporting Junior Doctors Going Bush* Program was developed based on the findings from Chapter 4. Four strategies were developed to underpin the program. The proposed program was distributed for comment to the Medical Education Officers and Directors of Clinical Training in Queensland teaching hospitals, and Medical Administrators based at the PMEFQ.

5.2.1 Strategy 1 – Facilitate Appropriate Term Allocations

One of the key findings from the data detailed in Chapter 4 was the need to ensure junior doctors have opportunities to experience managing a broad range of conditions and illnesses that are likely to present in rural communities. Spending a term or some time in appropriate disciplines was suggested to facilitate such experiences. The first strategy of the program was for the program facilitators to facilitate, where possible, the process whereby junior doctors who would be going into rural practice could undertake terms in four

priority disciplines. These priority disciplines were paediatrics, obstetrics and gynaecology, anaesthetics including intensive care, and emergency medicine.

Where appropriate experiences, managing conditions and illnesses likely to present in rural communities, were not received through term rotations, alternative strategies were suggested by respondents to fill this gap. These were the provision of an ongoing education program and attendance at procedural and skills courses.

5.2.2 Strategy 2 – Provide Ongoing Education Activities

Defining content for the second strategy was a more complex process and involved triangulation of data collected from the key informants as outlined in Chapter 4, and was supplemented by information from other key sources [49, 65, 81, 83, 124-127]. In section 2.3.3 it was shown that only one hour a week was considered to be available for education within the hospital setting. Hence, the program was built to cover 20 topics of one hours' duration. This allowed for approximately one topic per fortnight to be integrated into the usual junior doctor education programs delivered within the hospitals. A list of education topics emerged from triangulation. These topics were identified in several of the sources and were therefore considered important (see Table 24).

Table 24. Education topics for the program.

Emergency Skills
1. Airway management including intubation
2. Manage cardiac conditions, including myocardial infarction
3. Chest drain insertion
4. Cricothyroidotomy
5. Envenomation management
6. Managing head injuries
7. Insertion of intraosseous needles
8. Managing trauma
9. Managing eye emergencies
10. Patient retrieval and stabilisation for transfer
Continuing Care / General Practice Oriented Topics
11. Assessing suicide risk
12. Managing asthma
13. Manage child abuse and issue protection orders
14. Managing depression (including counselling skills)
15. Undertake skin procedures including cryotherapy
16. Managing diabetes
17. Assist with family planning
18. Perineal repair
19. Interpreting radiology
20. Appropriate prescribing

Source: Triangulation of data from Phase 1, PMEFQ, curriculum framework and other reports.

The clinical protocols for management of these presentations does not differ in either metropolitan or rural settings, however, it is the limited support and services in rural and remote areas that impacts on management options and effectiveness. Ensuring the topics were delivered considering rural context is discussed later in this chapter.

Topics were chosen that would allow those junior doctors going to rural and remote placements for short periods to attain emergency skills. In addition,

general practice or continuing care topics were selected to suit those going for longer periods. Each topic was presented with resources to facilitate easy delivery including, Powerpoint presentations, online resources, references to video clips from procedural CD-ROMs, clinical guidelines and case studies with questions for discussion.

Knowledge was also able to be developed further by accessing online resources including education and training websites, medical journals, clinical information, library contacts and help-line numbers. Online resources were able to be accessed through hyperlinks direct to the websites.

5.2.3 Strategy 3 - Promote Attendance at Courses

The third strategy of the *Supporting Junior Doctors Going Bush* Program was for local program facilitators to promote junior doctors' attendance at courses. These courses provided opportunities for acquiring and practising emergency and procedural skills before embarking on rural practice. A list of the courses or workshops was provided with a brief description of the content and hyperlinks to the websites of the providers. On these websites dates of upcoming courses, costs and registration forms could be accessed. The details of courses that were identified as relevant to rural practice were promoted through the program. The others were not included. Table 25 displays the courses listed.

Table 25. Courses listed on the website.

Courses
1. Advanced Life Support Obstetrics
2. Advanced Paediatric Life Support
3. Early Management of Severe Trauma
4. Pre-Hospital Trauma Life Support
5. Emergency Medicine Week (QRMSA)
6. Rural Preparatory Program (QRMSA)
7. Communication Workshops (Cognitive Institute)

Source: Interviews with key informants.

5.2.4 Strategy 4 - Provide Orientation for Those Undertaking Rural Practice

The fourth strategy comprised a request that program facilitators provide a range of orientation information for junior doctors undertaking rural terms or country relieving, before they left the primary allocation hospital. The content of the orientation information was developed based on the suggested topics identified in data collected through the key informant interviews (see section 4.3.5.4). An outline of the orientation content provided to the program facilitators is presented in Table 26.

Table 26. Outline of content for orientation to rural practice.

Title	**Content**
Before You Go:	Suggested key people to contact, information to gather and things to organise before leaving for a stint of country relieving or rural placement. Also included suggestions of what to take including information, resources and items that might make time in rural communities easier.
Community Information:	Provided links to relevant websites that detailed community information, services and facilities. Also provided images of a selection of health facilities and towns.
Indigenous Considerations:	Described useful hints for assisting dealing with Aboriginal and Torres Strait Islander people.
Upon Arrival:	Suggested key people to contact, questions to ask upon arriving and some general tips on settling into the new location.
Living Remotely:	Provided links to websites related to living and working in rural and remote communities.
Debriefing:	Outlined contact details of organisations able to assist with debriefing and counselling in the case of an adverse event or crisis.
Coming Home:	Listed steps to take upon returning from rural communities to assist in debriefing and evaluation of the placement.
General Practice:	Links to resources addressing general practice issues, including prescribing and billing are presented.

Source: Interviews with key informants.

5.3 PROGRAM IMPLEMENTATION AND PRESENTATION

The Medical Education Officers and Directors of Clinical Training at the four case study hospitals were recruited to facilitate each of the program strategies locally.

Guidelines for on-site delivery were developed and a website was constructed to facilitate implementation of the program. The website enabled remote access to the information, materials and resources. CDs were also provided to each hospital with copies of the information. Both the website and CDs were available to the postgraduate year two doctors who were unable to attend in-hospital activities or were self-directed learners.

The content for each of the program strategies was uploaded onto the website. In addition, details of the project, the report from phase one and other general information were included.

5.3.1 Project and General Information

In addition to the content provided for each of the strategies, other general information was provided about the project, outcomes from the first phase of the research and other relevant general information. An overview of this information is presented in Table 27.

Table 27. General information about the project.

Title	Content
About the Project:	Introduced the project, its aims, objectives and strategies, expected outcomes. It also included guidelines for on-site delivery and the framework to adapt curricula to be presented with a rural context.
Contacts:	Listed contact details for the project coordinator and the Directors of Clinical Training and Medical Education Officers at the four sites involved in the program trial.
Competencies:	Outlined the competencies for rural practice required by postgraduate year two doctors, which were being targeted through this program. These were identified in analysis of the initial research.
Content:	Provided an overview of the website (and program) content.
Feedback:	Provided a feedback form for users of the Hospital to provide comments to the researcher.
Useful Websites:	Provided links to websites of other relevant organisations including health departments, rural workforce agencies and postgraduate medical councils.
College Links:	Provided links to websites of the Australian colleges providing vocational training
Glossary:	Listed acronyms and abbreviations used in the field.

5.3 2 Integrating Rural Context with Content

The data in Chapter 4 indicated that the majority of respondents involved in education and training did not think that current programs were preparing junior doctors adequately for rural or remote practice (DCT04, DCT06, JD05, JD10, JD11, JD13, MEO08, MEO12). To facilitate education topics being presented with a focus on issues pertinent to rural and remote practice, the

Rural Practice Curriculum for Junior Doctors: A Framework was included in the program resources to reinforce the need for education to be delivered with a rural focus [90].

In this study the framework was provided to the program facilitators who were responsible for implementing the strategies in each case study site, to enable resulting activities to be tailored to the local conditions. Characteristics that differed included the presence of Aboriginal and Torres Strait Islander populations, a range of mining industry bases and farming communities, limited support services and large distances to secondary and tertiary hospitals. Although the majority of education and orientation activities for junior doctors would take place within the hospital setting, use of the framework would facilitate rural context being applied to the content presented.

5.4 SUMMARY

The outcomes of phase two were the *Supporting Junior Doctors Going Bush* Program and the identification of an appropriate framework for application of rural context to content being presented. The program aimed to prepare junior doctors for rural practice by facilitating a minimum set of experiences. Through these experiences competency could be developed in rural skills. The program consisted of four strategies. The four strategies were to: facilitate appropriate term allocations; provide ongoing education activities; promote attendance at courses; and provide orientation for junior doctors required to undertake rural practice. The implementation of the program through the internet facilitated dissemination of the information and resources, and easy access and sharing of materials across all case study sites.

The Rural Practice Curriculum for Junior Doctors: A Framework was included in the program resources to facilitate the integration of rural context into orientation and education activities. The framework was necessary to assist clinical teachers based within the hospital-setting, in particular in the semi-metropolitan hospital, to adapt their teaching to consider difficulties and issues faced commonly by practitioners in rural practice.

CHAPTER 6: PHASE 3 RESULTS - THE TRIAL: CONTEXT

6.1 INTRODUCTION

The third phase of the project aimed to pilot, or trial, the *Supporting Junior Doctors Going Bush* Program. The trial was held in four Queensland teaching hospitals. A case study approach was used to research the outcomes of the trial within each of the settings. It is important to understand the context of the trial before proceeding to an analysis of its impacts and feasibility. The trial was conducted in four Queensland hospitals. The characteristics of these hospitals are set out in section 3.5.1. Hospital 1 was located in a semi-metropolitan area. Hospitals 2 and 3 were situated in rural locations and Hospital 4 was in a remote area.

This chapter sets out contextual information relating to those responsible for delivering the program, the participants in the program and the reach of the program itself. The data were collected primarily through interviews with both the program facilitators and participants. Questionnaires were also used to supplement the interview data.

6.2 PROGRAM FACILITATORS

Seven program facilitators were involved in implementing the trial of the program. All agreed to participate in both the mid-trial and end-trial data collection activities. Four of the program facilitators were Directors of Clinical Training. Their roles were to support junior doctors and provide oversight of education and training programs. The remaining three program facilitators were Medical Education Officers and were directly involved in the delivery, facilitation and evaluation of training programs.

The four Directors of Clinical Training were all medically qualified. Two were male and two were female. None of the Medical Education Officers held medical qualifications. All three were female. Table 28 sets out the length of service of the program facilitators. Only two were relatively new to their positions, having a service length of less than two years.

Table 28. Length of service in current position.

Length of Service	DCTs (n=4)	MEOs (n=3)
Less than 2 years	1	1
Between 2 and 5 years	2	2
Over 5 years	1	0

Source: Mid-Trial Interviews.

6.3 PROGRAM PARTICIPANTS

As indicated in section 3.5.2 three questionnaires were used to collect data from the junior doctors. The questionnaires obtained information including demographics, preferences for future training and practice, and self-assessed competency in core rural presentations. In addition, the doctors were invited to participate in an interview at the conclusion of the trial. The response rates to the questionnaires and interviews were also indicated in Chapter 3 (see Tables 12 and 14).

In all, 23 of the 26 respondents completed the demographic section in any one the questionnaires. Fourteen of the junior doctors were male and nine female. All respondents had completed their internships in Queensland teaching hospitals and were in their second postgraduate year at one of the four intervention hospitals. Seventeen of the respondents were born between 1976 and 1980 resulting in the majority of the cohort beginning their internship, aged between 23 and 27 years (see Table 29).

Table 29. Respondents by year of birth and age at internship.

Year of Birth	Age at internship	Number	Percentage
1976 - 1980	23 to 27 years	17	73.9
1971 - 1975	28 to 32 years	4	17.4
1961 - 1965	38 to 42 years	2	8.7

Source: Junior Doctor Questionnaires.

Within the group, 11 (47.8%) were single, 10 (43.5%) were married or in defacto relationships, and two (8.7%) were divorced. All of the respondents, except one, had no children. The remaining one respondent had one child.

Respondents were asked to identify the cities or towns in which they were born and had lived while attending school. Their responses were categorised using the RRMA classification system (see Table 30).

Table 30. Respondents by RRMA of town of birth and schooling.

Classification (RRMA)	**Town of Birth**		**Primary School**		**Secondary School**	
	No	**%**	**No**	**%**	**No**	**%**
Overseas Locations	4	17.4	1	4.3	0	0
1: Capital City	11	47.8	13	56.5	15	65.2
2: Other Metropolitan Area	1	4.3	1	4.3	1	4.3
3: Large Rural Town	2	8.7	4	17.4	3	13.0
4: Small Rural Town	1	4.3	0	0	0	0
5: Other Rural Town	3	13.0	3	13.0	3	13.0
6: Remote Centre	1	4.3	1	4.3	1	4.3
7: Other Remote Centre	0	0	0	0	0	0

Source: Junior Doctor Questionnaires.

The majority of junior doctors were born in the city, and resident in the city for most of their primary and secondary schooling (47.8%, 56.5% and 65.2% respectively). None of the respondents had spent any significant time in 'other remote centres' and only one respondent had lived in a 'remote location'. There were a small proportion of respondents who were born overseas and had relocated to Australia during their school years.

All of the junior doctors had completed their medical degrees with the University of Queensland. It was the only medical school in the state at the

time. Twelve of the respondents (52.2%) held a Queensland Health Rural Scholarship, two (8.7%) were recipients of awards under the John Flynn Scholarship Scheme and the remaining eleven held none (39.1%).

6.3.1 Medical School Experiences and Outcomes

Details of medical school activities were collected in the pre-internship questionnaire to illustrate experiences shaping participants prior to their early postgraduate years. The respondents identified that undertaking rural placements had made the greatest contribution to the development of their current level of skills and knowledge, when compared with other teaching and learning strategies (see Table 31).

Table 31. Degree to which medical school teaching and learning strategies contributed to current knowledge and skills.

Teaching and Learning Strategy	**Mean * (n = 19)**	**Response range ***
Rural placements	1.95	1 - 5
Practical sessions	2.05	1 – 4
Self-directed education	2.26	1 – 4
Metropolitan placements	2.37	1 – 5
Lectures	2.95	1 – 6

* Scale of 1 to 6, where 1 = high contribution and 6 = no contribution.

Source: Junior Doctor Questionnaire A.

Rural placements received a mean rating of 1.95 on a rating scale of 1 to 6, where 1 indicated a high contribution to current level of skills and knowledge, and 6 indicating no contribution at all. It was the highest rated teaching and learning strategy. The activity that contributed least to current levels of skills and knowledge was reported to be lectures.

6.3.1.1 Rural Placements

Twenty of the 26 junior doctors had completed at least one rural placement at medical school, although many had completed more. In total, 50 placements

had been undertaken by the 20 respondents. The locations of placements were categorised using the RRMA classification system (see Table 32). The majority of placements were undertaken in rural or remote towns. The length of placement ranged from one to eight weeks in duration.

Table 32. Location of placements undertaken during medical school.

RRMA Classification & Description	Number of Placements
4: Small Rural Town	12
5: Other Rural Town	17
6: Remote Centre	5
7: Other Remote Centre	16
Total Rural Placements	50

Source: Junior Doctor Questionnaire A.

6.3.2 Preferences for Early Postgraduate Training

Sixteen of the 19 respondents to the first junior doctor questionnaire (84.2%) had received an offer to complete their first postgraduate year at their preferred hospitals. Only three respondents did not receive an offer at their preferred hospitals. Two respondents stated that their initial choice was for a hospital closer to home and the third had chosen a different hospital because of successful prior experience there.

In their second postgraduate year, 11 of the 14 respondents to the junior doctor questionnaire (78.6%) were offered places at their preferred hospitals. Again, three respondents did not receive their first preferences.

6.3.3 Intentions for Vocational Training and Future Practice Location

Despite being in early stages of their medical careers, the junior doctors had begun thinking of their future career paths. Of the 19 respondents to the first questionnaire, 15 (78.9%) indicated that they were intending on pursuing vocational training although eight of these doctors (53.3%) were still undecided as to their chosen career path. Of the seven respondents who had

decided on a career path three had chosen general practice (20.0%), two selected obstetrics and gynaecology (13.3%), and one each had chosen medical (physician) training (6.7%) and surgical training (6.7%).

Respondents rated their intentions for rural practice on a scale of 1 to 6, where 1 indicated they were very likely to practise in a rural location, and 6 indicating they were not likely. Table 33 below outlines the mean ratings by location of the case study hospital. The number of respondents who were undecided as to whether they might practise in a rural area is identified in brackets.

Respondents based at all four case study hospitals had lower ratings for their junior doctor and registrar years, than for practice after they had completed vocational training. This indicated that the junior doctors intended to spend more time in rural areas while training.

Table 33. Mean ratings indicating intentions for future practice during stages of career *.

Hospital	Junior years	Registrar Years	Future up to 5 years	Future 5 years +	Locums
1	3.2 (1)#	2.3 (1) #	4.4	5.0	3.8 (1) #
2	1.0 (2) #	2.7	3.0 (1) #	4.0	2.3
3	2.0	2.3	2.5	3.3	3.3
4	1.3 (1) #	2.7 (2) #	3.3 (1) #	4.8 (1) #	2.3 (1) #
All Hospitals	2.2 (4) #	2.4 (3) #	3.5 (2) #	4.4 (1) #	3.1 (2) #

* Scale of 1 to 6, where 1 = very likely and 6 = not likely.

In brackets is the number of respondents who were undecided regarding future rural practice.

Source: Junior Doctor Questionnaire A.

The data indicated that all respondents, with the exception of those at Hospital 3, claimed they were less likely to practise in rural areas after vocational training, although more likely to undertake locums. Respondents based at Hospital 1 had higher ratings for each career stage, except for registrar years. This indicates that the junior doctors based at the semi-metropolitan hospital,

were less likely than the other respondents to practise in a rural area in the future.

6.4 PROGRAM REACH

The target audience of the program was those junior doctors who were likely to practise in rural or remote communities in their early postgraduate years. This included recipients of rural health scholarships as rural practice was a condition of the grant. Details of scholarships held and any rural exposure during the second postgraduate year were sought in the end of trial interviews to determine if the program had reached its target audience.

Within the cohort, twelve junior doctors were recipients of scholarships through the Queensland Health Rural Scholarship Scheme (JD203E, JD204E, JD205E, JD301E, JD302E, JD303E, JD304E, JD401E, JD402E, JD403E, JD404E, JD405E). This represented just under half of the total scholarship recipients in that year.

Fifteen of the 25 respondents had undertaken country relieving despite the stated concern about this practice as set out in section 4.3.1. In the mid-trial interviews, program facilitators from three of the four hospitals reported that postgraduate year two doctors had undertaken either rural terms or country relieving (DCT101M, DCT301M, DCT401M, MEO301M).

From Hospital 1, just over half of those interviewed had undertaken, or were scheduled to undertake, country relieving or a rural term (JD103E, JD106E, JD107E, JD109E, JD110E, JD111E). There were two types of locations where doctors had practised. Country relieving placements and terms were undertaken in a RRMA 5 location (other rural town), and a RRMA 6 location (a remote centre). The length of placements ranged from one day to three months, although the majority of placements were either five or six weeks in duration.

None of the postgraduate year two doctors from Hospital 2 had undertaken country relieving or rural terms during the year. One respondent indicated

he/she had been requested to undertake a three-week stint in a RRMA 5 centre, but had refused (JD202E).

All four respondents from Hospital 3 undertook country relieving in their second postgraduate year (JD301E, JD302E, JD303E, JD304E). Posts were at three locations, which included one Aboriginal community. Locations were in other rural towns (RRMA 5) or a remote centre (RRMA 7). Placements ranged from providing cover over the weekend to approximately six full days of work.

All five respondents from Hospital 4 reported undertaking country relieving during the year (JD401E, JD402E, JD403E, JD404E, JD405E). The junior doctors undertook practice at five different towns all of which were located in remote areas (RRMA 7). Two of the locations were Aboriginal communities. The length of placements ranged from two days to two and a half weeks.

6.5 SUMMARY

The data presented in this chapter have provided details about the program facilitators and the cohort of junior doctors participating in the trial. All of the program facilitators were in roles that supported junior doctors and were directly involved in the facilitation, delivery and evaluation of education and training including the *Supporting Junior Doctors Going Bush* Program. The four Directors of Clinical Training were all medically qualified. None of the three Medical Education Officers held medical qualifications. The majority of program facilitators had been in their positions, for over two years.

The junior doctors participating in the trial were generally single, aged between 23 and 27 and had no children. There were slightly more males than females. Results showed that the majority of junior doctors had lived and were schooled in cities, although all had been exposed to rural practice during their medical school training. While the majority of respondents had made decisions about their future career paths prior to starting their first postgraduate year, only a small proportion had definite preferences for enrolling in particular vocational training programs. The doctors were actively making decisions early in their professional lives and had plans for whether they intended to practise in rural

areas. Generally the doctors stated they were more likely to undertake rural practice during their training years.

Based on the proportion of junior doctors who held scholarships and those who had undertaken country relieving or rural practice, it was reasonable to conclude that the target audience for the program had been reached.

CHAPTER 7: PHASE 3 RESULTS - THE TRIAL: FEASIBILITY

7.1 INTRODUCTION

This chapter presents data relating to the feasibility of implementation of the program. There were two options for delivery. The main method was through hospital-based activities instigated by the program facilitators. In the other method parts of the program were available on the internet and CDs. These were available for self-directed learning where initiated by participants. Data were collected with the program facilitators at the mid and end points of the trial. The objectives are presented in Tables 10 and 11 (refer Chapter 3). Some data regarding feasibility were also collected from the point of view of the participants. Data were collected through interviews with the junior doctors at the conclusion of the trial. The response rates were presented in Table 12 and an overview of the objectives in Table 13 (refer Chapter 3).

7.2 INVESTIGATION OF HOSPITAL-BASED ACTIVITIES

7.2.1 Hospital 1

Hospital 1 was located in a semi-metropolitan area and had 280 beds. It was in close proximity to a tertiary facility, less than 20 kilometres away.

7.2.1.1 Strategy 1: Term Allocations

The program facilitators at Hospital 1 indicated that all of the priority terms were generally available to junior doctors in their second year (see Table 34). A half term in country relieving was noted as a common occurrence. Term allocations were the responsibility of the Deputy Medical Superintendent in consultation with the Director of Clinical Training (DCT101M, MEO101M). At this facility, the DCT indicated that no attempt was made to ensure that those junior doctors expected to undertake relieving, had completed the recommended terms (DCT101M).

Table 34. Term availability and uptake by junior doctors at Hospital 1.

Terms	**Availability**	**Uptake by Junior Doctors N = 11**	**Rural Exposure N = 6**
Paediatrics	✓	7	3
Obstetrics & Gynaecology	✓	3	0
Anaesthetics	✓	5	2
Emergency Medicine	✓	11	6

Source: Program Facilitator and Junior Doctor Interviews.

Responses from the junior doctors indicated that hospital rotations comprised five terms of approximately ten weeks duration. However in some cases, terms offered were split into five weeks within one hospital unit and five weeks in another. Table 34 details the number of postgraduate year two doctors who had completed any time in the priority terms. It also identifies the number of junior doctors who had undertaken or were scheduled to undertake relieving or rural terms, and had completed the priority terms. There were no rural scholarship holders at this hospital.

All of the junior doctors at Hospital 1 had undertaken at least part of a term in the emergency department (JD101E, JD102E, JD103E, JD104E, JD105E, JD106E, JD107E, JD108E, JD109E, JD110E, JD111E), but had variable completion of the other priority terms. None of the junior doctors who had practised in rural areas had undertaken a term in obstetrics and gynaecology prior to leaving their base hospital.

All respondents at Hospital 1 indicated that they had had input into their term allocations. Despite some changes in term allocations made by the hospital managers throughout the year, nearly all respondents were happy with their experiences (JD101E, JD102E, JD103E, JD104E, JD105E, JD107E, JD109E, JD110E, JD111E).

7.2.1.2 Strategy 2: Education Activities

Various educational activities were available for postgraduate year two doctors within the hospital setting. Activities included general resident medical officer meetings, sessions based at the unit or department level and grand rounds. The program facilitators indicated that doctors at various levels in training attended the educational activities (DCT101M, MEO101M).

Activities that were part of the hospital wide education programs were planned and organised by the Medical Education Officer with input from the Director of Clinical Training (DCT101M, MEO101M). The Medical Education Officer reported that the Medical Education Committee was also involved, particularly in defining content (MEO101M). At Hospital 1, a weekly session was held which targeted junior doctors specifically (DCT101M).

The program facilitators reported the topics in the *Supporting Junior Doctors Going Bush* Program were relevant and some were already included in the existing programs (DCT101M, MEO101M). Although specific sessions were not held for postgraduate year two doctors, other education activities addressing the topics were accessible through other meetings particularly at the departmental level. Some topics were also stated to have been covered through the QRMSA Rural Preparatory Program that was available to junior doctors.

Most of the topics were able to be integrated into the usual structures at Hospital 1 and therefore, were accessible to junior doctors (see Table 35). Those marked with an asterisk were also accessible through the rural preparatory course that was made available. There were a number of barriers that impeded the provision of education activities within the hospital setting. These are discussed in the barriers section below. The DCT reported good levels of attendance by doctors from all early postgraduate years, at sessions (DCT101M). The inclusion of rural context was not integrated with content in sessions provided by the hospital, as noted by the Medical Education Officer (MEO101M).

Table 35. Education topics offered at Hospital 1.

Topic Area		Offered
A.	Airway management	✓*
B.	Cardiac conditions	✓*
C.	Chest drains	*
D.	Cricothyroidotomy	*
E.	Envenomation	✓
F.	Head injuries	✓*
G.	Intraosseous needles	*
H.	Radiology	✓*
I.	Patient stabilisation for transfer	✓*
J.	Trauma	✓*
K.	Asthma	✓
L.	Assessing suicide risk	✓
M.	Child abuse / protection orders	✓
N.	Cryotherapy	
O.	Diabetes	✓
P.	Eye emergencies	✓*
Q.	Family planning	✓
R.	Depression	✓
S.	Perineal repair	✓*
T.	Prescribing	✓*

* Topic also accessible through the Rural Preparatory Program.

Source: Program Facilitator Questionnaires.

Similar to the program facilitators, the majority of junior doctors at Hospital 1 described several educational opportunities that were available within the hospital (JD101E, JD102E, JD103E, JD104E, JD105E, JD107E, JD108E, JD109E, JD110E, JD111E). There was a junior doctor education session and grand rounds held weekly. Additionally, it was reported that each department had at least one education session each week. The majority of sessions were primarily didactic using Powerpoint presentations (JD101E, JD102E, JD103E,

JD104E, JD106E, JD107E, JD108E, JD109E, JD110E). One junior doctor stated there was usually an opportunity to ask questions and have interaction (JD103E). It was noted by some respondents that the tutorials held in the emergency department were often more practical (JD101E, JD102E, JD107E, JD111E).

The junior doctors agreed with the program facilitators that the topics included in the education sessions were relevant. Just over half the junior doctors reported they did not have any input into the programs (JD101E, JD104E, JD106E, JD108E, JD110E, JD111E). The remainder indicated they had requested topics or been involved by presenting. A quarter of the respondents reported some discussion around management in a more remote setting (JD101E, JD104E, JD105E, JD111E), however, this was not common in many presentations.

About half the respondents reported they were regular attendees at the junior doctor sessions (JD101E, JD103E, JD104E, JD107E, JD108E, JD111E). Some barriers were experienced which impacted on ability to attend. Organisational barriers were the major hindrances. It was reported that the work in particular disciplines was just too busy and it was difficult to get away (JD101E, JD102E, JD103E, JD105E, JD106E, JD107E, JD108E, JD109E, JD110E, JD111E). This was particularly characteristic of terms in emergency medicine. Apart from workload, service requirements including clinics and operating theatre clashed with sessions. The other barriers to attending education activities related to rosters and shift work.

A few respondents had suggestions for overcoming these barriers, however several did not see any solutions to the clashes between education and clinics and theatre. Two respondents suggested that organisational culture needed to be improved (JD101E, JD107E). It was thought that education needed to be given a higher priority within the hospital. One respondent indicated that if education activities were seen to be more important, then other tasks would not be scheduled to overlap with sessions (JD107E). It was mentioned by one respondent that the DCT actively encouraged participation (JD111E).

7.2.1.3 Strategy 3: Promoting Course Attendance

One of the program facilitators reported that they were aware of the dates of upcoming courses relevant to preparation for rural practice and did advertise these to the junior doctors (DCT101M). It was reported that the hospital provided some support for junior doctors to attend. Generally, it was approval of paid leave or a financial contribution to assist in covering registration fees that was provided (DCT101M).

The program facilitators reported that the rural preparatory program offered by the QRMSA was the course attended most commonly by junior doctors (DCT101M, MEO101M). This two-day course was designed specifically for those preparing for rural practice. It was through this course that many of the educational topics were also covered. In interviews at the conclusion of the trial, the DCT indicated that more effort than usual had been expended trying to get the junior doctors to attend courses, in particular the rural preparatory program (DCT101E). The DCT commented:

> 'We have tried to get them to the rural workshops, but we haven't got them all' (DCT101E).

However, the majority of junior doctors at Hospital 1 indicated that generally they were not aware of the dates of upcoming skills and procedural courses available (JD102E, JD104E, JD105E, JD106E, JD107E, JD108E, JD110E, JD111E). Less than a quarter of respondents had participated in any courses. Two respondents had been advised of, and completed the QRMSA Rural Preparatory Program (JD109E, JD111E). One other junior doctor had participated in the Emergency Life Support Course, which had been organised by the respondent him/herself (JD103E). The respondents reported that the rural preparatory program was good, and the emergency life support course was excellent. A quarter of the respondents had participated in a neonatal resuscitation course, which was held within the hospital (JD101E, JD104E, JD105E, JD107E). Over half of the respondents indicated that they would like

to participate in such courses (JD101E, JD103E, JD105E, JD106E, JD107E, JD109E, JD110E).

The major barrier impacting on attendance at courses was lack of communication and the respondents just not being aware of upcoming dates. This was mentioned by over half of the junior doctors (JD101E, JD102E, JD104E, JD105E, JD107E, JD110E). Another general barrier was the long waiting lists to get into some courses (JD109E).

Individual barriers were financial issues and motivation. It was reported by a quarter of the junior doctors that registration for courses was very expensive (JD103E, JD104E, JD109E). In addition the cost of travel and accommodation that would be incurred made it difficult for junior doctors to participate. Motivation was an issue reported by two respondents (JD102E, JD107E). One mentioned that exhaustion prevented her from pursuing courses and another stated time was a factor. A quarter of respondents indicated that rosters and obtaining leave were organisational barriers to attending (JD106E, JD107E, JD108E). Working shifts and weekends often clashed with course dates. It was reported that getting leave could also be a problem.

A quarter of the junior doctors suggested that improved communication would facilitate awareness (JD101E, JD102E, JD105E). It was thought that an electronic calendar could be developed or courses could be promoted through the regular junior doctor education sessions. At the organisational level, two respondents commented that the presence of a relievers' pool within the hospital was a good strategy to backfill staff away on leave (JD107E, JD108E). While one junior doctor indicated that attendance would be promoted if courses were held on weekends (JD104E), another respondent said that paid leave should be made available for all health staff (JD108E). Another respondent suggested that the hospital needed to support such activities and provide some financial assistance (JD103E).

7.2.1.4 Strategy 4: Rural Placement Orientation

Six of the junior doctors from Hospital 1 had, or were scheduled to undertake a rural placement in their second postgraduate year. In the mid-point interview, the DCT reported providing limited orientation. Only information about the town to which the junior doctors were going, was provided (DCT101M).

Prior to leaving for his/her rural placement, one junior doctor from Hospital 1 thought this information had been received, but was not sure (JD111E). Other than this, no orientation was reportedly received prior to placements.

Upon arrival at the relieving post, over half of those undertaking rural practice reported receiving a brief tour of the hospital and the location of equipment and facilities was pointed out (JD106E, JD107E, JD109E, JD111E). Overall, orientation for rural placements was not implemented successfully at this facility.

7.2.2 Hospital 2

Hospitals 2 was categorised as being located in large rural centre [16]. The hospital had 163 beds and was approximately 380 kilometres from the nearest tertiary facility.

7.2.2.1 Strategy 1: Term Allocations

The program facilitators indicated that all of the priority terms were generally available to junior doctors in their second postgraduate year, with the exception of anaesthetics (see Table 36). Only part of an anaesthetics term was reportedly offered on some occasions (DCT201M). Other common terms undertaken at the PGY2 level were orthopaedics and internal relief. Term allocations were the responsibility of a Clinical Support Officer (MEO201M).

The junior doctors indicated that five terms of approximately ten weeks duration were offered at Hospital 2. However in some cases, terms offered were split, where a short time (generally two weeks) was spent within another unit. Table 36 details the number of junior doctors who had completed any time in the priority terms. The number of junior doctors holding scholarships,

who had undertaken the priority terms, is also outlined. None of the junior doctors at Hospital 2 had undertaken rural practice.

Table 36. Term availability and uptake by junior doctors at Hospital 2.

Terms	**Availability**	**Uptake by Junior Doctors N = 5**	**Scholarship Holders N = 3**
Paediatrics	✓	5	3
Obstetrics & Gynaecology	✓	5	3
Anaesthetics	Part term only	3	2
Emergency Medicine	✓	5	3

Source: Program Facilitator and Junior Doctor Interviews.

All of the junior doctors at Hospital 2 had undertaken the priority terms, with the exception of two who had not had any exposure to anaesthetics (JD201E, JD204E). Only one doctor who was a scholarship holder had not spent any time undertaking anaesthetics. The junior doctors also reported that in anaesthetics they had had less than a full term, generally only two weeks (JD202E, JD203E, JD205E).

Hospital 2 offered a set program of terms to provide a broad generalist experience over the two years. This program aimed to assist junior doctors to prepare for future rural practice. One respondent indicated that the junior doctors did have some input into their term allocations (JD201E). Nearly all respondents were happy with their terms over the year (JD202E, JD203E, JD204E). Two respondents indicated they would have preferred exposure to other disciplines, in particular anaesthetics, but were still reasonably satisfied with their allocations (JD201E, JD205E).

7.2.2.2 Strategy 2: Education Activities

Activities available for junior doctors included general resident medical officer meetings, sessions based at the unit or department level and grand rounds. Hospital 2 had suspended education sessions specifically targeting second year doctors in the trial year due to lack of support from the hospital administration (DCT201M).

The Medical Education Officer was responsible for organising activities that were part of the hospital wide education programs with input from the Director of Clinical Training (DCT201M, MEO201M). The Medical Education Committee was also involved, particularly in defining content (MEO201M). The DCT indicated that doctors at various levels attended the activities (DCT201M).

One of the program facilitators at Hospital 2 stated that the topics requested to be covered in the program were relevant to practice at the hospital, and some were already in their existing programs (MEO201M). Although specific sessions were not held for junior doctors, the topics were accessible through other meetings particularly at the departmental level. It was also reported that the topics were covered through the QRMSA Rural Preparatory Program that was available (DCT201M).

Table 37 identifies the topics that were covered in hospital programs. Those marked with an asterisk were also available through the rural preparatory course. Again, a number of barriers to implementation were experienced. When activities did occur, the DCT reported sessions were well attended (DCT201M). The inclusion of rural context was not discussed in sessions (DCT201M, MEO201M). It was reported by the junior doctors that there were limited educational opportunities for them at Hospital 2. All respondents indicated there was not a specific meeting for postgraduate year two doctors. There was a 'junior doctor meeting' that they could attend (JD201E, JD202E, JD203E, JD204E, JD205E). Some departments had weekly meetings and there were evening lectures approximately once a month. Most of the respondents indicated that the style of the sessions varied. Some were didactic and others

were interactive. The style usually depended on the experience of the presenter (JD201E, JD203E, JD204E). Most of the respondents also reported that most of the topics were relevant (JD201E, JD203E, JD204E). One junior doctor indicated they were able to have input into the program if they wished (JD201E), although the majority of the program comprised set topics (JD203E, JD204E). All respondents but one, indicated that management in a more remote setting was not included in their sessions and that it generally addressed local presentations (JD202E, JD203E, JD204E, JD205E).

Table 37. Education topics offered at Hospital 2.

Topic Area		**Offered**
A.	Airway management	*
B.	Cardiac conditions	*
C.	Chest drains	*
D.	Cricothyroidotomy	*
E.	Envenomation	
F.	Head injuries	*
G.	Intraosseous needles	*
H.	Radiology	*
I.	Patient stabilisation for transfer	*
J.	Trauma	*
K.	Asthma	✓
L.	Assessing suicide risk	
M.	Child abuse / protection orders	✓
N.	Cryotherapy	
O.	Diabetes	✓
P.	Eye emergencies	✓*
Q.	Family planning	
R.	Depression	✓
S.	Perineal repair	*
T.	Prescribing	✓*

* Topic also accessible through the Rural Preparatory Program.

Source: Program Facilitator Questionnaires.

Most respondents reported attending only few of the junior doctor sessions (JD202E, JD203E, JD204E, JD205E). Barriers were identified at the organisational and individual levels. All respondents identified heavy workloads and being busy, impacted on their ability to attend (JD201E, JD202E, JD203E, JD204E, JD205E). Other organisational barriers mentioned were clashes with clinics, being short staffed, and issues relating to rosters and shift work. Motivation was an individual barrier identified by two of the respondents (JD201E, JD205E). Taking a break for lunch was reported to be a more attractive option than attending an education session, particularly if the topic was not perceived as relevant. It was also mentioned that the loss of the provision of food was a barrier (JD201E).

The junior doctors identified a number of suggestions to address the barriers. A suggestion by three of respondents was that there needed to be a culture change across the organisation (JD201E, JD202E, JD203E). The importance of education for junior doctors needed to be reinforced particularly with Heads of Department, and attendance supported. Half of the respondents reported the Medical Education Officer answered pagers to facilitate protected time for the doctors (JD203E, JD205E). One respondent suggested putting signs up around the hospital promoting education activities and advising of the protected time (JD204E). This might encourage staff to cease paging the doctors during education times.

Suggestions were also made surrounding the timing and scheduling of activities. One junior doctor suggested putting a timetable of unit activities together (JD201E). Another suggested altering start times of clinics, which would assist in eliminating clashes between education and other service requirements (JD205E). Two respondents believed that there was a need for extra staff (JD202E, JD205E). Another suggestion was brought in from experience at another hospital. One respondent commented that almost all staff members were rostered to work on a particular day and provided backup for each other, while education sessions were attended. The respondent commented:

> ‘The way they organised the roster was that virtually everyone in the department was rostered to work on the Thursday. So if you were working during the week you would be on, on Thursday, if you were working the weekend you were working a Thursday. That was just the day of maximum overlap. You would split up, absolutely everyone in the department who was at work, the junior doctors would go off and the senior doctors would cover, and then we (the junior doctors) would come back and cover the registrars and senior doctors, with the odd consultant topping up the floor as well’ (JD204E).

The respondent indicated this strategy worked well at the department level and questioned whether it might work at the hospital level. Two respondents noted that motivation to attend sessions could perhaps be improved if a good lunch was provided for those activities held at lunchtime (JD201E, JD205E).

7.2.2.3 Strategy 3: Promoting Course Attendance

Both program facilitators at Hospital 2 stated that they were aware of the dates of upcoming procedural and skills courses (DCT201M, MEO201M). However, it was commented that notice was generally very late which made it difficult for junior doctors to plan attendance (DCT201M). The hospital management did support junior doctors in attending, generally through a financial contribution towards accommodation and granting paid leave (DCT201M).

The two-day QRMSA Rural Preparatory Program was the course attended most commonly by junior doctors (DCT201M, MEO201M). It was through this course that many of the educational topics were covered. In the end-point interviews, the Director of Clinical Training mentioned that more effort had been expended trying to get the junior doctors to attend courses (DCT201E). The DCT reported that the Pre-Hospital Trauma Life Support (PHTLS) course was the most popular with junior doctors (DCT201E). This last statement was not supported by data collected from the junior doctors.

All of the junior doctors at Hospital 2 indicated they were aware of the dates of upcoming skills and procedural courses. Three of the junior doctors had completed the QRMSA Rural Preparatory Program (JD201E, JD202E, JD203E), two had participated in the Advanced Paediatric Life Support (APLS) course (JD201E, JD203E), and one had undertaken the Emergency Management of Severe Trauma (EMST) course (JD205E). Only one respondent had not undertaken any courses (JD204E). Overall, the junior doctors thought all courses were valuable. One junior doctor thought only half of the Rural Preparatory Program was relevant, but still rated it as worthwhile:

> 'I thought it was too content heavy…. The practical stuff was excellent and that's probably what I would like it to be more (sic) than lectures' (JD201E).

While only one respondent had undertaken EMST (JD205E), all remaining respondents indicated that they were enrolled to (JD201E, JD202E, JD203E), or would like to undertake the course in the following year (JD204E).

The junior doctors identified a number of barriers that impacted on their ability to attend courses. The strong themes that emerged corresponded to organisational, individual and general issues. Organisational barriers were difficulties obtaining leave and being short staffed. Issues with staffing levels in the local workforce made it difficult for junior doctors to obtain leave to attend courses (JD201E, JD202E, JD203E, JD205E). This situation reportedly lead to an individual barrier, burnout. Two respondents stated that working long hours and many days without a break was not conducive to undertaking courses in their time off (JD202E, JD203E). Another individual barrier was the cost of courses, which were mentioned to be very expensive. Three respondents stated that travel was usually required as courses were often not held in regional centres and this impacted on cost (JD201E, JD204E, JD205E). Other general issues identified were not getting enough notice (JD202E) and the long waiting lists for enrolment into some courses (JD204E).

Suggestions to address barriers at the organisational level included ensuring that hospital administration was given adequate notice to amend rosters (JD203E) and also make available paid leave for conference and course attendance (JD202E). General suggestions included the introduction of grants to cover costs for attendance (JD205E), having someone to coordinate logistical aspects for the junior doctors (JD204E), and giving those in rural areas preference over city doctors (JD201E). A couple of suggestions targeted course providers. One was the need for better advertising, for example, more posters displaying details of upcoming events around hospitals (JD204E). Another suggestion was to provide more courses in regional areas to reduce costs for rural attendees (JD201E).

7.2.2.4 Strategy 4: Rural Placement Orientation

As none of the junior doctors at Hospital 2 had undertaken rural practice during the year, the orientation to rural placements strategy was not implemented.

7.2.3 Hospital 3

Hospital 3 was categorised as being located in large rural centre. There were 203 beds at the hospital, which was approximately 700 kilometres from the nearest tertiary facility.

7.2.3.1 Strategy 1: Term Allocations

The priority terms were generally available to junior doctors at Hospital 3 with the exception of anaesthetics, which was not offered consistently (see Table 38). Other terms taken by junior doctors in their second postgraduate year were surgery (DCT301M) and mental health (MEO301M). Term allocations were the responsibility of staff within the Medical Staff Support Unit (MSSU) with input from the Director of Medical Services, and sometimes the Medical Education Officer (DCT301M, MEO301M). Some difficulties were experienced in offering the priority terms. These are discussed in more detail in the barriers section below.

The junior doctors indicated that five terms of approximately ten weeks duration were offered within the hospital. Similar to other facilities, terms

were sometimes split between two disciplines. Table 38 details the number of junior doctors who had completed any time in the priority terms. All of the junior doctors at Hospital 3 held rural scholarships, and had undertaken relieving or rural terms during the year.

Table 38. Term availability and uptake by junior doctors at Hospital 3.

Terms	**Availability**	**Uptake by Junior Doctors N = 4**	**Rural Exposure / Scholarship Holders N = 4**
Paediatrics	✓	4	4
Obstetrics & Gynaecology	✓	4	4
Anaesthetics	Part term only	4	4
Emergency Medicine	✓	4	4

Source: Program Facilitator and Junior Doctor Interviews.

All of the junior doctors at Hospital 3 had spent some time in the four priority terms (JD301E, JD302E, JD303E, JD304E). Even though the hospital offered a set program of terms over the first two postgraduate years, all of the respondents indicated that they had had some input into their term allocations (JD301E, JD302E, JD303E, JD304E). All of the respondents stated they were happy with the terms they had completed over the year (JD301E, JD302E, JD303E, JD304E).

7.2.3.2 Strategy 2: Education Activities

Educational activities at Hospital 3 included specific postgraduate year two programs, general resident medical officer meetings, sessions based at the unit or department level, grand rounds and other general meetings.

The Medical Education Officer reported that sessions focusing on activities specifically for postgraduate year two doctors were held monthly (MEO301M).

Doctors at various levels in training attended the activities (DCT301M, MEO301M). It was reported that most of the sessions were open for all medical officers to attend (DCT301M). The respondent commented:

> 'All our education sessions are open to everybody, that's unlike it is in the cities where only people in each department attend the departmental meetings and there's a lot of interchange, so people from all levels from students up to registrars and consultants wander into sessions' (DCT301M).

Education activities were planned and organised by the Medical Education Officer with input from the Director of Clinical Training (DCT301M, MEO301M). The Medical Education Officer reported involving junior doctors directly in the decision-making processes in relation to timing and topics (MEO301M).

The program facilitators reported the topics in the *Supporting Junior Doctors Going Bush* Program were relevant and some were already included in their existing programs (DCT301M, MEO301M). The majority of the program topics were addressed during the year (see Table 39). Topics marked with an asterisk were also covered through the rural preparatory program that was made available to all of the junior doctors.

There were a number of barriers that impeded the provision of education activities within the hospital setting. When activities did occur, the MEOs and DCTs reported there were generally good levels of attendance at sessions (DCT301M, MEO301M). The inclusion of rural context was reportedly integrated into sessions (MEO301M). Patients from peripheral rural areas were treated in this hospital and therefore management in more rural or remote location was a consistent element in the majority of activities.

Table 39. Education topics offered at Hospital 3.

Topic Area		Hospital 3
A.	Airway management	✓*
B.	Cardiac conditions	✓*
C.	Chest drains	✓*
D.	Cricothyroidotomy	*
E.	Envenomation	✓
F.	Head injuries	✓*
G.	Intraosseous needles	✓*
H.	Radiology	✓*
I.	Patient stabilisation for transfer	✓*
J.	Trauma	✓*
K.	Asthma	✓
L.	Assessing suicide risk	✓
M.	Child abuse / protection orders	✓
N.	Cryotherapy	
O.	Diabetes	✓
P.	Eye emergencies	✓*
Q.	Family planning	
R.	Depression	✓
S.	Perineal repair	✓*
T.	Prescribing	✓*

* Topics also accessible through the Rural Preparatory Program.

Source: Program Facilitator Questionnaires.

All junior doctors based at Hospital 3 confirmed statements made by the program facilitators that there was a meeting specifically for them. However, responses regarding frequency differed from weekly (JD303E, JD304E), to fortnightly (JD302E), and monthly (JD301E). It was identified that there were a range of departmental meetings available to junior doctors. One respondent mentioned there were also radiology and therapeutic meetings held weekly (JD302E).

It was reported by all respondents that the meetings targeting junior doctors were predominantly case presentations (JD301E, JD302E, JD303E, JD304E). Powerpoint presentations were used, and depending on the presenter, were generally interactive. It was noted that some were didactic. All respondents stated the presentation topics were relevant. One junior doctor reported having input into the program content (JD304E). Others reported having input into content only through presenting cases themselves (JD301E, JD302E, JD303E). Two of the junior doctors noted it was not common that management in a more remote setting was included in the topics, with most discussion focusing on the local environment (JD301E, JD303E).

Two respondents reported they regularly attended sessions (JD303E, JD304E). Only a few barriers were identified. At the organisational level heavy workloads and working overtime were barriers (JD303E, JD304E). The timing of sessions was also an issue as they clashed primarily with ward rounds (JD301E, JD302E). There were also clashes with junior doctors being rostered either on-call or on days they were not working. One respondent also declared that the limited numbers of junior staff hindered the offering of activities (JD302E). This respondent also mentioned that there were shortages in the senior ranks resulting in junior staff having to take on more responsibility and they did not have time to attend activities (JD302E). A barrier at the individual level was burnout. One respondent indicated that being tired from working overtime hindered him/her from attending sessions in the early morning. The junior doctor stated:

> 'You work quite a bit of overtime and it's not uncommon to be working two hours over in the evening so then in the morning you are tired' (JD303E).

The junior doctors had a few suggestions for the organisational barriers. Two respondents suggested that education should be recognised as a priority within the hospital (JD302E, JD303E). One junior doctor suggested it should be a condition of employment and written into the award (JD303E), and the other suggested that protected time should be allocated (JD302E). Another

respondent reported that additional staff would make it easier for junior doctors to attend sessions (JD304E). It was also suggested that maybe a time change would improve accessibility (JD301E).

7.2.3.3 Strategy 3: Promoting Course Attendance

The program facilitators reported that they were aware of the dates of upcoming courses provided by external organisations (DCT301M, MEO301M). One respondent reported that notice was generally very late which made it difficult for junior doctors to plan attendance (MEO301M). The program facilitators did advertise courses to the junior doctors. It was reported that the hospital administration did provide some support for junior doctors to attend. Generally, it was a financial contribution to assist in covering registration fees or travel (DCT301M). The Medical Education Officer reported that two junior doctors had received financial support through the Rural Health Scholarship Scheme, and another had funded his/her own attendance (MEO301M).

The course attended most commonly by junior doctors was again reported to be the Rural Preparatory Program offered by the QRMSA (DCT301M, MEO301M). In the end-point interviews, both program facilitators mentioned that more effort had been expended trying to get their junior doctors to attend courses than previously (DCT301E, MEO301E). The course that was most popular was the Advanced Paediatric Life Support Course (DCT301E, MEO301E). Additionally, the Medical Education Officer was pushing for the junior doctors to participate in an emergency medicine course (MEO301E).

The junior doctors at Hospital 3 concurred with the program facilitators regarding their awareness of the dates of upcoming courses. Only one respondent reported doing his/her own research on the internet to find out when courses were being run (JD303E). All respondents had participated in the QRMSA Rural Preparatory Program (JD301E, JD302E, JD303E, JD304E). In addition, three-quarters of the junior doctors had completed the Advanced Paediatric Life Support Course (JD301E, JD302E, JD303E). Overall, the

junior doctors reported both courses were useful, in particular the Advanced Paediatric Life Support Course.

There were a number of organisational barriers to participating in courses, which were experienced by the junior doctors. All respondents mentioned being short staffed, having a heavy workload and failing to obtain approved leave (JD301E, JD302E, JD303E, JD304E). The other major barrier mentioned by the respondents was difficulty experienced with the hospital administrative staff (JD302E, JD303E, JD304E). It was reported that there was no support for such training and therefore there were delays in processing paperwork, securing funding and obtaining approved leave. The administrative staff were reluctant to allow junior doctors to attend. One respondent reported that the administrative staff and those supporting medical staff took different approaches. While one looked at strategies to retain staff in the longer term the other took a short-term crisis management approach:

> 'Our Medical Staff Support Unit are (sic) very keen on trying to promote recruitment and retention and trying to recruit for the long term. The administration seems to take the short-term crisis management sort of approach to medical staffing… In terms of training and education they (sic) [the MSSU] have been proactive but are hamstrung here at the moment because the Medical Education Unit does not actually get a funding allocation of its own' (JD302E).

The respondents had a few suggestions to overcome these barriers. These were making attendance at courses a condition of employment written into the award (JD303E), allocating a budget to the Medical Education Unit and promoting longer-term retention through support (JD302E). Other general suggestions were to provide incentives for doctors who stayed in the district for longer periods, for example, to attend a course fully funded by the district (JD304E). Funding and leave should be allocated to those going into rural practice to enable them to attend courses to assist preparation for rural placements (JD301E). In addition, one junior doctor suggested there should be a coordinator who could arrange all of the logistical aspects (JD301E).

7.2.3.4 Strategy 4: Rural Placement Orientation

All of the junior doctors at Hospital 3 had undertaken either rural terms or country relieving. Limited orientation had reportedly taken place. The Medical Education Officer reported that junior doctors were given a briefing by other medical staff who had worked at the facility to which they were being sent (MEO301M).

The junior doctors did not identify any orientation prior to their rural placement. Upon arrival at the relieving post, half of the respondents reported receiving a brief tour of the hospital and identification of the location of equipment and facilities (JD301E, JD302E). Generally the respondents did receive a handover from the outgoing doctor (JD301E, JD302E, JD304E). The junior doctors reported that orientation activities depended on the staff present at the time of arrival at the relieving post.

7.2.4 Hospital 4

The fourth hospital had 81 beds and was located in a remote centre. It was nearly 1,000 kilometres to the nearest tertiary facility.

7.2.4.1 Strategy 1: Term Allocations

The program facilitator reported that three of the four priority terms were generally available to junior doctors in their second year (see Table 40). This facility did not offer a term in paediatrics. Other terms undertaken commonly were medicine, surgery and country relieving. Allocations at this facility were the responsibility of the Director of Clinical Training (DCT401M). Responses from the junior doctors indicated that the hospital offered five terms of approximately ten weeks duration. Table 40 details the number of junior doctors who had completed any time in the priority terms. All of the junior doctors were rural scholarship holders and had also been required to undertake country relieving or rural terms.

Table 40. Term availability and uptake by junior doctors at Hospital 4.

Terms	**Availability**	**Uptake by Junior Doctors N = 5**	**Rural Exposure / Scholarship Holders N = 5**
Paediatrics	Not available	0	0
Obstetrics & Gynaecology	✓	3	3
Anaesthetics	✓	3	3
Emergency Medicine	✓	5	5

Source: Program Facilitator and Junior Doctor Interviews.

All of the junior doctors at Hospital 4 had received experience in the emergency department, but just half in obstetrics and gynaecology and anaesthetics (JD401E, JD402E, JD403E, JD404E, JD405E). It was reported by some of the junior doctors that they had had less than a full term in anaesthetics (JD401E, JD402E, JD405E). The junior doctors confirmed there was no access to a paediatrics term at this hospital.

All respondents indicated that they had had input into their term allocations (JD401E, JD402E, JD403E, JD404E, JD405E). Despite some changes in term allocations, all of the junior doctors reported they were happy with the terms they had completed during the year.

7.2.4.2 Strategy 2: Education Activities

The program facilitator reported that two education sessions per week were held for junior doctors within the hospital setting (DCT401M). The Medical Education Officer was responsible for planning and organising these activities. The Director of Clinical Training provided input where required (DCT401M). The Director also reported that junior doctors were involved directly in the decision-making processes in relation to topics (DCT401M).

The Director of Clinical Training reported that the 20 topics identified for education activities as part of the *Supporting Junior Doctors Going Bush* Program were relevant to the local practice, and some were already in the existing program (DCT401M) (see Table 41).

Table 41. Education topics offered at Hospital 4.

Topic Area		**Offered**
A.	Airway management	✓
B.	Cardiac conditions	✓
C.	Chest drains	✓
D.	Cricothyroidotomy	
E.	Envenomation	
F.	Head injuries	✓
G.	Intraosseous needles	
H.	Radiology	✓
I.	Patient stabilisation for transfer	✓
J.	Trauma	✓
K.	Asthma	✓
L.	Assessing suicide risk	
M.	Child abuse / protection orders	
N.	Cryotherapy	
O.	Diabetes	✓
P.	Eye emergencies	✓
Q.	Family planning	✓
R.	Depression	
S.	Perineal repair	
T.	Prescribing	✓

Source: Program Facilitator Questionnaires.

There were a number of barriers that hindered the provision of education activities within the hospital setting.

Good levels of attendance at sessions were reported by the DCT (DCT401M). The inclusion of rural, or at this site remote context, was reportedly integrated into sessions (DCT401M). It was a constant element in the majority of activities and hence was included in discussions.

At Hospital 4 the junior doctors reported there was education sessions specifically for them, and a clinical grand round session scheduled weekly (JD401E, JD402E, JD403E, JD404E, JD405E). One respondent mentioned there were sometimes other sessions including an x-ray meeting (JD404E). Teaching styles were primarily didactic with Powerpoint presentations (JD401E, JD402E, JD403E, JD404E, JD405E). It was reported by one junior doctor that there was an attempt to include some interaction (JD405E).

All of the respondents indicated they were given the opportunity to have input into the program content by suggesting topics (JD402E, JD403E, JD404E) and conducting presentations (JD401E, JD405E). All junior doctors reported that the topics in the program were relevant (JD401E, JD402E, JD403E, JD404E, JD405E). Management in a more remote setting was included to a small extent (JD403E, JD404E, JD405E). In addition, two respondents mentioned that there were sessions in the orientation week regarding relieving in remote areas (JD401E) and orientation to the Royal Flying Doctor Service (JD402E).

There were differences in stated attendance at sessions. The majority of respondents reported attending no more than half of the sessions (JD402E, JD403E, JD404E), with one respondent reflecting that he/she would have only attended about two sessions during the year (JD405E). All barriers to attending education activities that were identified related to organisational issues. Every respondent identified that heavy workloads and being too busy were the main barriers affecting their ability to attend sessions (JD401E, JD402E, JD403E, JD404E, JD405E). Other barriers identified were inadequate staffing levels (JD401E), rosters (JD405E), clashes with operating theatre and clinics (JD401E, JD402E), and education not being seen as important by other staff (JD405E).

The junior doctors made a number of suggestions to overcome these organisational barriers. Over half the respondents believed recruitment of staff at, junior or senior levels would improve their ability to attend activities (JD402E, JD403E, JD404E). Two respondents suggested that an educational culture needed to be developed (JD401E, JD405E). It was mentioned that education needed to be supported by other staff within the hospital which would make attendance easier. Other organisational suggestions were to ensure sessions did not clash with service requirements (JD402E), and to develop a library of presentations that could be accessed at any time for those not able to attend the sessions (JD405E). One respondent mentioned a suggestion at the individual level. Motivation to attend might be improved by the provision of good food (JD401E).

7.2.4.3 Strategy 3: Promoting Course Attendance

The program facilitator at Hospital 4 reported that he was not directly aware of the dates for upcoming courses (DCT401M). It was reported that the hospital administration did provide some support for junior doctors to attend, generally payment for registration fees or a contribution to travel. Again, the course attended most commonly by junior doctors was reported to be the QRMSAs Rural Preparatory Program (DCT401M).

In the end-point interview, the Director of Clinical Training indicated that more effort had been expended trying to get the junior doctors to attend courses (DCT401E). The course that was most commonly attended by junior doctors was the Pre-Hospital Trauma Life Support course (DCT401E). The DCT indicated a greater effort was being made to facilitate junior doctors undertaking the Advanced Life Support Course provided within the hospital (DCT401E).

The junior doctors at Hospital 4 were generally aware of skills and procedural courses offered by external organisations. Just over half of the group reported that they were advised of the upcoming dates for courses (JD401E, JD402E, JD403E). A further one respondent stated that they had researched details about the courses on the program website (JD405E). Two respondents had

participated in the QRMSA Paediatric Emergency Medicine Course (JD402E, JD403E) and one had completed the Emergency Management of Severe Trauma (JD401E). Two respondents had not participated in any courses (JD404E, JD405E). One of these respondents had enrolled but was not able to attend (JD405E). One respondent was scheduled to participate in the PHTLS course in the coming weeks (JD403E). Those who had participated in courses indicated that both were very useful (JD401E, JD402E, JD403E).

There were barriers affecting the ability of junior doctors to participate in courses. These were similar to barriers which affected the junior doctors' ability to attend education at the hospital and included limited staffing numbers and heavy workloads (JD401E, JD402E, JD403E, JD404E, JD405E). One respondent mentioned cost (JD402E). Two other respondents indicated that this was not an issue (JD401E, JD405E). Another respondent mentioned communication was an issue and that the promotion of courses could be better conducted (JD404E).

Several suggestions were made, which junior doctors perceived would enhance opportunities for them to attend courses. At the organisational level, recruitment of staff would enable more flexibility with rosters and facilitate junior doctors obtaining approved leave (JD403E, JD405E). Two respondents suggested that making attendance at courses a condition of employment would assist with increasing attendance (JD402E, JD405E). Over half the respondents stated that funding should continue to be provided for junior doctors to attend (JD401E, JD402E, JD403E). Other general suggestions included the appointment of a coordinator to undertake all the arrangements on behalf of junior doctors (JD405E), improved communication of upcoming events (JD404E) and ensuring courses were of a high standard as some had considerable waiting lists (JD405E).

7.2.4.4 Strategy 4: Rural Placement Orientation

All of the junior doctors at Hospital 4 had been required to undertake either rural terms or country relieving. The Director of Clinical Training reported that the junior doctors had received orientation relating to relieving and the

support provided by the Royal Flying Doctors Service at the beginning of the year. In addition, the DCT reported speaking briefly to each junior doctor before he/she left for placement (DCT401M). The Director also understood that there were orientation manuals for all relieving posts. Upon arrival the junior doctors were encouraged to access these. The junior doctors were advised to contact the doctor they were going to relieve, the day or night prior to arriving to discuss what tasks would be required (DCT401M).

Only two of the junior doctors at this facility reported that they had received orientation before they left their primary hospital. Both of these respondents reported attending a session in their orientation week where one of the local doctors discussed each relieving post in the district (JD404E, JD405E). Most of the respondents had received a hospital tour where the location of equipment and facilities were pointed out (JD401E, JD403E, JD404E, JD405E). Just over half of the respondents had received a handover from the outgoing doctor (JD401E, JD403E, JD404E).

The junior doctors reported that orientation activities depended on the staff present at the time of arrival. On some occasions the regular doctor had already left town and hence there was no opportunity for a handover of patients. Generally, it was the Director of Nursing who provided the tour of the remote facilities.

7.3 BARRIERS TO DELIVERY OF HOSPITAL-BASED ACTIVITIES

As is presented in the preceding discussion, the junior doctors identified a number of barriers to participating in the strategies. To explore the feasibility of delivery of the program further, the local program facilitators were asked to provide details of the barriers that they faced in implementing the strategies. All of the program facilitators at the hospitals identified a number of barriers that impacted on the delivery of the program and its strategies. Two primary themes emerged from the data analysis: organisational and program barriers. A number of 'nodes' were identified in data analysis that were related. These were linked to together to form trees and the key result areas. Organisational barriers were those occurring at the facility or hospital level. Program barriers

related to the content and format of program materials, and issues over which those directly involved in the program had limited control.

7.3.1 Organisational Barriers

At the hospital level there were several major barriers that impacted on the implementation of the program. These included staffing levels, workloads and time and scheduling of activities. Other issues were availability of resources and organisational culture. Several barriers impacted on each other, for example, workloads were increased and junior doctors had limited free time because of staff shortages.

7.3.1.1 Staffing Levels and Workload

Staffing levels were a barrier for three groups within hospitals: educators, senior clinicians and junior doctors. It was reported by program facilitators from three of the case study hospitals that having only part-time Medical Education Officers made it difficult to implement fully the activities of the *Supporting Junior Doctors Going Bush* Program (MEO101M, MEO201E, DCT401M). Problems surrounding recruitment and retention impacted on staffing at all levels. This was also evident at the Medical Education Officer level as two of the three Medical Education Officers submitted their resignation during the project's timeframe.

A shortage of staff was a major issue affecting all hospitals (DCT201E, DCT401M, MEO101E, MEO201M, MEO301E). Shortages in the senior ranks impacted on the availability of clinicians to teach. It also impacted on the ability of junior doctors to participate in activities. One respondent commented:

> 'We had difficulties with senior staff shortages and therefore presenter shortages and when you are short senior staff, you have more busy junior staff and so then we had junior staff not turning up' (DCT201M).

Shortages also made it difficult for doctors to obtain leave, as there were no other clinicians to backfill and replace them while away. Hence, there were difficulties in participating in training courses, conferences and even taking holidays. Not having the full complement of staff impacted negatively on workloads. A Director of Clinical Training commented:

> 'When you know you're a staff member down, you're just trying to play catch up' (DCT201M).

A respondent from another hospital mentioned similar issues highlighting that when there were staff shortages. This impacted on junior doctors in that they were quite often required to undertake higher positions and responsibilities and there was not an adequate level of support provided to them in these roles. The respondent stated:

> 'I think that the junior doctors this year perceive that their workloads are way too high and too hard. They have been asked to do higher, more responsible jobs than they want to, for example, they are acting as PHOs [Principal House Officers] and I don't think that they have felt supported' (MEO201M).

Six of the seven program facilitators reported that workloads had an impact not only on the implementation of the project, but also on the broader activities within hospitals (DCT101M, DCT201M, DCT401M, MEO101M, MEO201M, MEO301M). There were similar effects to those mentioned above from staffing shortages in that workloads prevented doctors from attending activities, participating in training courses and obtaining leave.

One respondent mentioned that workloads were also increasing due to the requirements placed upon clinical staff from the universities (DCT101M). Supervision and teaching of medical students was taking an increasing amount of time, and therefore other clinical responsibilities were falling into unpaid time. It was indicated that there had been no financial compensation from the universities.

The DCT commented:

> 'Another problem that we've come up with that's become a problem recently, is there's growing dissatisfaction with the amount of work that the university is putting onto clinical areas without any financial compensation' (DCT101M).

7.3.1.2 Timing and Scheduling

Staff shortages and high workloads in turn impacted on timing and scheduling. As junior doctors often had to fill gaps in senior staffing levels and manage high workloads they were not able to attend education activities, nor get leave to participate in conferences or training courses.

While the program facilitators at the four hospitals were able to integrate many of the program topics into their usual structures, workload and staffing issues impacted on attendance. The timing of educational sessions was identified as a barrier (DCT101M, DCT301M, DCT401M, MEO101M, MEO301M). Difficulties were experienced in finding a time when all junior doctors were able to attend activities (DCT101M, DCT301M, MEO101M). It was noted that there was generally no protected time for junior doctors to attend education (DCT101M) and roster changes meant doctors scheduled to present sessions were not always available (MEO301M).

These barriers impacted on the successful implementation of two strategies of the project: provision of an ongoing education program and promotion of participation in courses. Timing also impacted on the provision of orientation. One DCT stated that when relievers arrived at their post, quite often they had to start work and see patients immediately, and therefore there was not adequate time for orientation. The respondent commented:

> ‘Once they arrive it’s very difficult. Most of them get off the plane and immediately start working. There is no real time for orientation and showing them around the place’ (DCT401M).

In the end-point interviews, respondents reported that the majority of barriers relating to timing and scheduling identified at the mid-point remained. No new issues had emerged. However, two respondents did mention that there had been some improvements since the mid-point. One hospital had managed to recruit additional junior doctors, which alleviated staff shortages and enabled others to take time off to attend courses and other educational activities (DCT401E). Another respondent indicated that the senior staffing levels at his/her facility had stabilised and this had resulted in more of a focus on education and encouragement for junior doctors to attend (DCT201E).

7.3.1.3 Resources

Clinical equipment and consumables, physical resources and audio-visual equipment were essential to the delivery of the program. Facilitators from three of the four hospitals identified major problems with accessing different resources (DCT101M, DCT201E, MEO101M, MEO201M, MEO301M). Two hospitals had no access to manikins (DCT101M, MEO301M). There was also limited access to other clinical equipment such as intraosseous needles (DCT101M). Availability of physical resources such as rooms and audio-visual equipment including data projectors was an issue for program facilitators at the semi-metropolitan hospital (DCT101M). Access to resources was not an issue at the remote hospital as they were co-located with a campus of the local university (DCT401M).

7.3.1.4 Organisational Culture and Administration

Organisational culture was an issue highlighted by program facilitators in the mid-point interviews. It was reported by program facilitators at two sites that clinical staff within base hospitals did not have a good understanding of what was required of, and what support was necessary for, those junior doctors who would be undertaking country relieving or rural terms (MEO101M, MEO201M). This lack of understanding was influencing the level of support

that should be available for junior doctors. In addition, one respondent reported that the hospital administration was not supportive of training activities for junior doctors and limited funding was provided for resources and attendance at courses (MEO301M).

The *Supporting Junior Doctors Going Bush* Program was identified as a tool that could be used to increase awareness of the issues affecting junior doctors going into rural practice and improve organisational culture. One respondent commented:

> 'It's [the program] assisting with a cultural change at not only a junior level, but also at a senior level. You know you're sort of fighting a tide of senior clinicians who say gees (sic) I did my rural thing you know…. I think it is educating and they've got a bit more of an understanding and I think that it's assisting with that as well' (MEO201M).

At the end-point of the trial the program facilitators continued to experience issues with organisational culture. Activities at Hospital 2 had been hindered by a further divide between the medical and nursing staff, which impacted adversely on the use of the limited training resources available locally (DCT201E). At another hospital further issues were being experienced with the administration still not supporting junior doctors' participation in education and training activities. The administration was providing very limited funding, if any, for such activities (DCT301E, MEO301E).

Another administrative issue was the requirement for hospitals to which the junior doctors were going, to cover travel costs for families of those seconded for longer than four weeks (DCT101E). While this was not recognised as an issue with the current group of relievers, it was identified as a potential issue in the future. This would have major financial implications for secondment hospitals.

7.3.2 Program Barriers

In the mid-point interviews, all of the program facilitators stated they clearly understood the objectives of the *Supporting Junior Doctors Going Bush* Program (DCT101M, DCT201M, DCT301M, DCT401M, MEO101M, MEO201M, MEO301M). However, one respondent was unsure of some of the specific requirements under each strategy (MEO101M), and another questioned the benefit of the program as the junior doctors based at this hospital did not undertake rural placements during the trial year (MEO201M).

Content and formatting, copyright issues and financial costs were identified as the main barriers relating directly to implementation of the program. There were three issues relating to content and formatting. One program facilitator identified that no answers were provided for the case studies on the CD (DCT101M). There was also some confusion experienced by the program facilitators from one hospital, in navigating through the file structures on the CD (DCT101M, MEO101M).

Suitability of the delivery modes was also an issue. According to adult learning principles, a more effective way of learning is through interaction [116]. Two session plans were provided to guide the delivery of practical skills sessions, as it was expected that educational staff would have different levels of resources at their disposal. In line with the literature, the interactive or hands-on styles were recommended. However, one DCT suggested that junior doctors were not as interested in interaction and this impacted on the styles in which content was presented. He/she commented:

> 'Most of the junior doctors are far more interested in didactic, well, they're interested in practical hands-on things, but they really don't want to work very hard in their education sessions, despite what the university tells us about them being adult learners who are self starters' (DCT101M).

There was also a question raised by two respondents surrounding copyright of the materials and resources (DCT101M, DCT201M). There was concern about permission to use the resources.

Two respondents identified the financial costs associated with developing and maintaining resources for the project (DCT101M, DCT201M). It was recognised that there would be a cost involved in employing staff and in revising resources to maintain the currency of content.

One respondent identified that on some occasions junior doctors did not receive adequate clinical experiences through their terms, due to variations in the type of conditions and illnesses with which patients presented (MEO301M).

Unexpected events were other barriers, which affected activities, in particular the conduct of education sessions. Three respondents identified that regularly, a speaker or presenter would cancel at the last minute, an emergency would occur, or a critically ill patient would present and prohibit both senior and junior staff from attending education (DCT401M, MEO101M, MEO301M). While education was undertaken in paid time, both senior and junior doctors were not protected from service requirements. However, one respondent reported that staff members were annoyed with having to do things in their own, unpaid time. The DCT stated:

> 'People are absolutely fed up with the fact that there is no protected time, there is no gratitude for a whole lot of things that are done so that is becoming a barrier' (DCT101M).

Lack of communication between providers of procedural and skills courses and the hospitals meant that quite often details of upcoming skills and procedural courses were not reaching the target audience (DCT201M). This resulted in the program facilitators and junior doctors not being aware of course dates or on some occasions not being advised in an adequate timeframe to enable attendance.

7.4 OVERCOMING BARRIERS

Respondents were asked if they had any suggestions or solutions that could be implemented to work toward overcoming barriers to delivery. Similar to the barriers, there were two main themes for suggestions: organisational and program.

7.4.1 Organisational Suggestions

There were several suggestions at the organisational level. These targeted staffing, timing, resources and organisational culture.

One program facilitator reported that the hospital management was making a concerted effort toward recruitment and retention of staff at all levels (DCT401M). This respondent indicated that personal contact was being made with each individual doctor to discuss the doctor's future career plans and how needs could be met. The respondent indicated that paying attention to the individual doctor's needs might assist in retaining staff. Another respondent suggested that recruitment strategies in general also needed to be reviewed (MEO301M). It was mentioned, for example, that many non-metropolitan hospitals only offered award conditions. Other incentives could be offered.

One Medical Education Officer put forward an innovative suggestion (MEO301M). He/she reported that there were a number of general practitioners in the community who wanted to secure clinical attachments at the hospital to refresh their procedural skills. Opportunities could be developed for GPs to undertake an attachment, and at the same time provide backfill for junior doctors who were pursuing their own education and training needs. The respondent commented:

> '… a number of GPs wanted to secure clinical attachments just to refresh some of their procedural skills… if you can get the docs who are interested in doing that, you know, into clinical attachments, that's a backfill option for getting the juniors involved' (MEO301M).

There were also suggestions that targeted the program facilitators. One respondent identified that employment of a full time Medical Education Officer would assist in facilitating activities and ensure that the program was implemented appropriately (DCT401M). In the end-point interviews, another respondent reported that the hospital was employing a new Medical Education Officer who might be more enthusiastic and keen to implement the program (MEO101E).

As identified in the barriers section, the majority of respondents indicated that the timing of educational sessions was important. There were issues with sessions clashing with service requirements including ward rounds, clinics and theatre. One program facilitator indicated they would like to introduce a dedicated rural session, but there were difficulties in finding a time that was suitable and did not clash with other existing hospital activities (MEO101M). Activities on weekends were suggested as an option. This was not thought to be feasible though as it had additional financial implications (MEO301M).

A Medical Education Officer reported that they were currently developing a 'warehouse' of Powerpoint presentations that had been conducted at education sessions which could be accessed at any time by the junior doctors, including those who were not able to attend (MEO301M). This respondent was hoping to work toward either video or audio taping sessions to provide a narrative to accompany the Powerpoint presentations. The Medical Education Officer stated:

> 'I would like to move our education to a stage where there is an element of self-directed learning. I already sort of warehouse all of the power point presentations to a central location which the doctors can access anytime, but I'd like to take it one step further by at least having a narrated Powerpoint so that people who are on shift don't miss out' (MEO301M).

This respondent had acquired funding for a video camera, and commented further:

> ‘With the video camera I’m hoping to develop a video collection of procedures that we’ve done and then if people can’t get to something at least there’s something they can do, of course it’s not, anywhere near as good as actually doing it, but it’s something’ (MEO301M).

Other suggestions included identifying three dates at the beginning of the year that would be clear of clinics, theatres and other activities to focus on education (MEO301M). Although this had been proposed at one hospital, the respondent reported that the administrative staff were not supportive. Another program facilitator suggested that, preferably, sessions should be in paid time or if held at lunch times, lunch should be provided (MEO201M).

One program facilitator reported that his/her hospital had overcome problems with timing. The DCT indicated that having changed the day and time of the education sessions, had impacted positively on the ability of senior and junior staff to present and attend (DCT401M).

Over half of the program facilitators, representing three of the four case study hospitals had suggestions relating to resources (DCT101M, DCT201M, DCT201E, MEO101M, MEO301M). Education staff at the hospitals did not have access to a range of clinical learning equipment including manikins and other consumables that could be used for training purposes. The development of a pool of resources that could be shared across hospitals was one solution (DCT101M). As mentioned above, one respondent suggested videotaping procedures to compensate for the lack of manikins and equipment (MEO301M).

In both the mid or end-point interviews every program facilitator mentioned that improving the organisational culture would assist in implementing the program and other hospital activities. Barriers could be overcome by improving support and meeting training obligations, providing funding, minimising administrative bureaucracy, and making staff feel more valued.

Comments from one Medical Education Officer indicated that opportunities to attend education were a right, not a privilege. The respondent stated:

> 'I think there needs to be a bit of a cultural shift, with an expectation to attend education, it's not a privilege' (MEO201M).

A Director of Clinical Training stated that there are implications relating to patient safety when staff had not been trained appropriately. The DCT commented:

> 'The hospital needs to make a bigger commitment to ensure that they are trained, particularly the scholarships holders. The (State Health Department) has this emphasis on safe treatment of patients, patient safety aspects, and if you don't train people properly then you have to be responsible for errors that might occur' (DCT301E).

One program facilitator stated that funding should be provided for junior doctors to attend training courses, particularly in situations where the hospital could not provided adequate on-site training. The Medical Education Officer stated:

> 'As a regional facility we have struggled with recruitment and retention. We are not providing optimal training experiences, I mean we are probably doing it better than some hospitals, but not as good as others. At the end of the day our responsibility is to provide these people with the training they need to meet their scholarship commitments and that means supporting them attending these intensive courses and they should be core expectations' (MEO301E).

7.4.2 Program Suggestions

In the mid-point interviews, suggestions for improvement of the *Supporting Junior Doctors Going Bush* Program targeted the content, delivery modes, promotion of the program and training issues.

Two respondents suggested that more information was required in the content section for rural orientation. Content should have been provided for each hospital including geographic details, the level of facilities available within the hospital, the local services in the community, the general work schedule and the required skills (DCT301M, DCT401M). Overall, it was thought that orientation provided by the program facilitators could have been done better. In addition, one respondent identified that answers should have been provided for the case studies outlined on the CD (DCT101M).

There were suggestions surrounding delivery of the program. One program facilitator stated that delivery over the internet was a better mode than delivery within the hospital setting, as information could be easily updated and accessed from various locations (DCT101M). This respondent also suggested that a download option onto a Personal Digital Assistant (PDA) might have been useful.

Two program facilitators suggested that promotion of the program and its information should be increased (DCT201M, DCT401M). Face-to-face sessions and regular email reminders were strategies suggested which might increase awareness and usage of the program.

One DCT proposed that more education for the program facilitators responsible for facilitating on-site delivery would assist in ensuring they had an adequate level of understanding about the program (DCT201M). This respondent suggested a user manual be developed. Another respondent noted that when introducing something new, a smoother transition could be achieved if the new concept or approach was introduced and promoted to people who were the most progressive in their thinking (MEO101M). When demonstrated with preliminary evidence of success, this could help integrate new approaches into the hospital.

Three program facilitators identified that training about the program could be improved. First, it was suggested that in addition to a user manual, more training could take place at the program facilitator level (DCT201M). Second,

training was required for registrars and presenters to ensure that they understood the purpose and learning objectives of the program. This would enable them to deliver the content taking into account adult learning principles, including promotion of interactive methods (MEO101M, MEO301M). One respondent had developed a 'tips kit' for use in his/her hospital. The kit targeted education coordinators and registrars who were term supervisors and included information on different methods of teaching (MEO301M).

A number of suggestions targeted issues that impacted upon the program activities, but were beyond the control of those involved. Many were targeted at organisations involved with education and training including the State Health Department, providers of skills and procedural courses, hospitals and the universities.

Four respondents suggested that support through the provision of funding and approval of leave would assist junior doctors to participate in courses (DCT101M, DCT301M, MEO201M, MEO301E). This was a particularly pertinent issue for scholarship holders. They indicated that the District Hospitals, the State Health Department or the Office of Rural Health should fund courses either solely or collaboratively. One respondent said:

> 'I think the Office of Rural Health needs to identify that and enter an agreement to co-fund scholarship holders with Queensland Health. For Queensland Health, it is in their interest to make sure people are properly trained because they can then basically put them anywhere they need. I think funding for that needs to be managed at a corporate level because it is a state-wide resource, even though at the moment the districts are putting up money if they have it for individuals to do certain courses, I get the feeling that there is a little bit of resentment because they might fund a scholarship holder to do one course that might be half way through their PGY2 year, but they may not be going to get the benefit of that person's enhanced skills. Really it should be looked at from the corporate state-wide perspective. Regardless of

whether that person is going to be at a particular facility providing services the outcome is better services for Queensland' (MEO301E).

Two respondents suggested that course providers should consider decentralising training into more regional centres (DCT201M, DCT401M), and communicate actively with doctors providing further advance notice (DCT401M). The benefits highlighted for decentralising training included increased exposure to regional centres for metropolitan-based doctors (DCT401M), providing financial benefits for those currently practising in regional centres by reducing costs for travel and accommodation (DCT201M), and minimising the amount of time for travel (MEO301M).

One program facilitator suggested that universities could assist in the preparation of junior doctors by facilitating more student placements in rural and remote centres where they would be required to practise in the future. The respondent commented:

> 'You can't really put in words what to expect when you come here. One thing I can advise, is for students to do more rotations to (Hospital 4) because they are getting exposure to the place as a protected species, then when they come up here later, they know more of what to expect and what it's going to be like up here' (DCT401M).

A final suggestion was targeted at the junior doctors themselves. One respondent mentioned that it might be more effective for junior doctors to take action as a collective group instead of individually at their hospitals (MEO201M). For issues that the junior doctors perceived to be important, it was suggested that action could be taken through the Resident Medical Officer state-wide campaign where they could voice their opinions professionally and at a state level.

7.5 INVESTIGATION OF SELF-DIRECTED LEARNING

The section presents the results outlining the extent to which the participants undertook self-directed learning and gained access to program resources and

information themselves. The results were obtained through interview questions which sought information on whether participants were aware of the program; whether they gained access to resources and information; and the perceived quality of materials. Barriers to undertaking self-directed learning and suggestions for overcoming these were also explored.

The aim of the *Supporting Junior Doctors Going Bush* Program was to present a minimum set of experiences to junior doctors, particularly those who would be undertaking either country relieving or rural terms. Whilst all of the program facilitators were aware of the program and responsible for promoting and implementing it, just over two-thirds of the junior doctors at the case study hospitals were aware of the program. Of the respondents, seven from Hospital 1 (JD101E, JD102E, JD104E, JD106E, JD107EJD109E, JD111E), three from Hospital 2 (JD201E, JD203E, JD204E), two from Hospital 3 (JD302E, JD303E), and all five respondents from Hospital 4 had heard of the program (JD401E, JD402E, JD403E, JD404E, JD405E). The strategies were designed to be integrated into current hospital support structures. It was possible that those junior doctors, who were not aware of the program, might not have known that they could have been participating in aspects of it.

Of those who were aware of the program only four junior doctors had undertaken self-directed learning and accessed any of the information or resources presented on the website or CDs: three from Hospital 4 (JD401E, JD402E, JD403E) and one from Hospital 2 (JD201E). The respondent from Hospital 2 had used the procedural CD-ROMs, and the respondents from Hospital 4 had used pages of the program website.

The junior doctor who had used the procedural CD-ROMs had not done so in any depth (JD201E). The website pages consulted were primarily those with details of course dates and application forms, and orientation information detailing what to do before country relieving (JD401E, JD402E, JD403E). One of the three respondents found the information they had consulted useful for their purposes (JD403E).

Those junior doctors who were aware of the program, but had not accessed any of the self-directed resources, were asked if any barriers had hindered them. The predominant barriers were time (JD201E, JD405E), knowing how to gain access to the resources (JD303E), having the motivation (JD203E), and remembering the program existed (JD401E, JD404E). Time was a barrier to other activities in the program, generally due to short staffing and heavy workloads.

One respondent noted that he/she was familiar with the locations to which junior doctors were being sent and therefore did not need any further information about them. However, if he/she was sent somewhere with which he/she was unfamiliar, the resources might be useful (JD302E). One respondent suggested that posters advertising the program might assist in reminding junior doctors of the resources and information available (JD404E).

From the data, it was apparent that while all of the program facilitators were engaged in delivering the program, variable numbers of junior doctors at each case study hospital were engaged actively in the self-directed aspect of program delivery. Awareness of the program was reasonable with over two-thirds of the group having heard about it. Whilst the majority of junior doctors were involved in the strategies which were facilitated on-site, very few had undertaken self-directed activities.

7.6 BENEFITS OF A RURAL PROGRAM

The program facilitators and participants were asked if they thought a program to assist junior doctors prepare for rural practice would be beneficial.

7.6.1 Benefits Identified by Program Facilitators

The program facilitators supported the concept of a rural preparatory program and highlighted a number of benefits or advantages. The majority of respondents mentioned that the program would better prepare junior doctors for practice, and inform their expectations of rural communities (DCT101M, DCT201M, DCT401M, MEO101M, MEO201M, MEO301M). Knowing what to expect would minimise anxiety and assist junior doctors in identifying their

areas of weakness. One program facilitator stated that junior doctors did need support and quite often did not realise how much they needed it until they were actually out in the rural community (MEO201M).

A Director of Clinical Training identified that one benefit of the *Supporting Junior Doctors Going Bush* program was its delivery mode. Electronic resources were easier to manage than 'carrying a whole lot of books' (DCT101M). Another respondent identified a similar benefit commenting:

> 'I think foremost it would be that they know that they're not alone, they're not the lone sailor. I think knowing that there's something available electronically that they can at least go to, to source some information about where, to get the information that they need is useful. I think the material that's available online that is self-directed learning is useful' (MEO301M).

Two respondents perceived a program such as the *Supporting Junior Doctors Going Bush* Program, as a tool to change the culture within their organisations (MEO101M, MEO201M). It was reported that it would heighten awareness in the people who were teaching the junior doctors, in particular the senior staff (MEO101M). A Medical Education Officer commented:

> 'It's assisting with a cultural change at not only a junior level but also at a senior level. You know you're sort of fighting a tide of senior clinicians… I think it is educating [them] and they've got a bit more of an understanding' (MEO201M).

Ensuring understanding within the senior levels was expected to facilitate the provision of more support, through relevant advice, that was needed by junior doctors when in rural communities. A final benefit identified by a program facilitator, resulting from initiation of the program, was that it filled a gap, as currently there was little support from the State Health Department. The respondent stated:

> ‘Queensland Health is not in a position to be able to provide access to all the areas that may be necessary, before sending people rural, so it at least gives people something to help them’ (DCT101M).

7.6.2 Benefits Identified by Participants

The majority of junior doctors agreed with the program facilitators that there were benefits in having a program to prepare and support those who were going to be undertaking practice in rural or remote communities. The benefits of such a program are listed in Table 42.

Table 42. Benefits of having a rural support program.

Benefit	**Reference**
A decreased feeling of isolation through the facilitation of professional contacts and personal support networks	JD102E, JD103E, JD104E, JD105E, JD108E, JD109E, JD201E, JD204E, JD205E, JD401E, JD404E, JD405E
Possession of appropriate skills	JD101E, JD107E, JD110E, JD111E, JD201E, JD203E, JD303E, JD403E
Increased confidence through experience and training	JD202E, JD301E, JD304E
Better informed expectations	JD302E JD403E, JD404E

Source: Junior Doctor Interviews.

One respondent highlighted the possible negative impacts of junior doctors not having appropriate levels of support. The junior doctor stated:

> ‘I think there needs to be quite a lot of support because there are enough stories around of younger doctors who have had their careers ruined or didn’t want to go back out because of situations they couldn’t handle’ (JD109E).

7.6.3 Components of a Rural Program

The junior doctors identified what they would expect to be components of a program aimed at preparing and supporting people to undertake rural practice. Approximately half of the respondents identified support as an essential

component (JD102E, JD103E, JD104E, JD105E, JD108E, JD109E, JD201E, JD204E, JD205E, JD401E, JD404E, JD405E). Responses regarding support could be categorised into three areas: knowing who to call and when for advice on clinical decision-making; providing pastoral care, moral support and debriefing; and also for professional networking.

One respondent suggested that knowledge of the professional support available would have been valuable prior to placement (JD401E). However, the majority of respondents indicated that professional support while on placement would be the most beneficial (JD102E, JD103E, JD104E, JD105E, JD108E, JD109E, JD201E, JD204E, JD205E, JD404E, JD405E). As the relievers were junior doctors who were not experienced practitioners, they felt they needed support through advice and in clinical decision-making. One respondent commented:

> '…maybe a hotline so that you could call someone in case you don't know and can't get to someone that you would trust on the phone' (JD201E).

Having someone to give the junior doctor a call to assess how they were going, provide moral support and also debrief them on any issues or traumas they might have faced was also identified as a strategy that would be useful (JD103E, JD105E, JD205E). One respondent stated that clinical staff from his/her primary hospital had kept in close contact with him/her during the placement, which had assisted him/her cope with the situation (JD103E). Professional networking would assist in pastoral care and also provide professional support to discuss cases, reflect upon decisions and provide feedback (JD405E).

Just under a third of respondents indicated that facilitating the development of appropriate skills should be a component of a rural program (JD101E, JD107E, JD110E, JD111E, JD201E, JD203E, JD303E, JD403E). Whether through experience, self-directed learning or attending education or courses, the core

skills required for rural practice should be promoted and addressed. One respondent commented:

> 'I think it would be good if there was a structured program where all doctors who are going to rural or remote areas, are linked in with a program in a structured way. Then everyone would have similar kinds of skills and similar kinds of teaching and preparation before they went, so they have the basic core of things that they need to survive' (JD107E).

Two respondents suggested that junior doctors needed to have a certain amount of exposure to clinical practice before being sent to rural or remote areas (JD110E, JD301E). It was suggested that specific terms and skills courses should be mandatory, an education program should be provided and that clinical practice should be well supervised.

Prior to going out into rural practice one junior doctor suggested that it would be useful to talk with people who had already practised in these areas to hear about and learn from their experiences. This would assist in informing expectations about the relieving posts (JD403E).

Other content identified by the junior doctors that would be useful in a rural support program included details of the clinical services available in the relieving locations (JD101E, JD404E), the core skills required for rural practice (JD110E, JD201E), availability of clinical information and courses on-line (JD203E, JD303E), and information on the community including social activities (JD201E, JD302E).

7.7 SUMMARY

The *Supporting Junior Doctors Going Bush* Program aimed to facilitate a minimum set of experiences being available to junior doctors who would be practising in rural or remote communities. The extent to which the four strategies were implemented at each case study hospital varied.

The priority terms were generally available in all hospitals, with the exception of the hospital located in a remote centre, which did not offer a term in the discipline of paediatrics. The majority of junior doctors in the two rural hospitals had undertaken at least part of a term in all of the priority disciplines.

The program facilitators at all four hospitals had been able to facilitate access to the majority of topics in the education program through various activities coordinated within the hospital or through junior doctors attending courses. Educational activities available included specific postgraduate year two programs, general resident medical officer meetings, sessions based at the unit or department level, grand rounds and other general meetings. While all hospitals experienced a number of barriers, program facilitators in Hospital 2, located in a rural area, appeared to have more difficulty in overcoming these. The integration of rural or remote context with clinical content was not strong.

The promotion and subsequent attendance at procedural and skills courses was reportedly stronger at the rural and remote case study hospitals than the semi-metropolitan site. The majority of junior doctors at these hospitals had participated in courses.

Orientation for junior doctors who were required to undertake country relieving or rural terms was minimal. Interestingly, none of the program facilitators indicated that they had referred the junior doctors to the orientation information presented on the website or CDs that had been developed as part of the program.

The experiences of implementing the program within the hospital settings varied across the four case study hospitals, however the strategies were able to be put into place to a reasonable degree in each of the hospitals. In terms of feasibility, a number of barriers were experienced in all hospitals. The predominant barriers were organisational issues including staffing levels, heavy workloads, resources and culture.

The experiences of postgraduate year two doctors in each of the hospitals were recorded to provide a perspective on the extent to which the strategies were implemented. Generally, the information provided by the junior doctors confirmed the experiences of the program facilitators. There were however, other barriers experienced by junior doctors in engaging with the hospital-based activities.

While two-thirds of the participants were aware of the program very few had undertaken self-directed activities and had gained access to any of the resources or information provided. A few barriers were identified that hindered the junior doctors' activities. Overall, both the program facilitators and the participants saw the value in having a program to prepare junior doctors who were required to undertake rural practice.

CHAPTER 8: PHASE 3 RESULTS - THE TRIAL: IMPACTS

8.1 INTRODUCTION

Chapter 7 described the extent to which the *Supporting Junior Doctors Going Bush* Program could be implemented. This chapter presents the results of the immediate impacts resulting from exposure to the program. There is also some indication of effects on organisations as measured through preparedness for practice in the hospital setting and rural and remote communities. Data were collected during interviews undertaken with the junior doctors at the conclusion of the trial and with the program facilitators at the mid and end points.

This chapter also presents quantitative data which complement findings from the interviews and provide a more thorough understanding of the extent of possible impacts of the program. Quantitative data was collected by questionnaire and included an examination of self-assessed competency in a range of clinical presentations suggested for rural practice, perceived preparedness for practice and living in a range of different environments, and intentions for vocational training and future practice location.

As the program was implemented in the second postgraduate year, measures were taken at three points in time: prior to the participants' first postgraduate year, and prior to, and at the conclusion of their second postgraduate year. This strategy aimed to identify any experiences that may have impacted on the junior doctors' intentions and perceived preparedness prior to exposure to the program.

8.2 PREPAREDNESS FOR HOSPITAL PRACTICE

8.2.1 Hospital 1

In the mid-point interviews, the Director of Clinical Training at Hospital 1 reported that the junior doctors were being exposed to broad generalist experiences (DCT101M). Although the hospital was located in a semi-

metropolitan area, it was stated that it could offer generalist terms rather than sub-specialty medicine. The Director stated that the junior doctors were:

> '…far better prepared than at the end of their first year for practice within the hospital' (DCT101E).

He/she stated further that the junior doctors would have received a variety of experiences through the different terms undertaken, and would manage presenting patients well. They were also more confident in their experience and abilities to deal with emergencies.

The majority of junior doctors at Hospital 1 agreed with the Director of Clinical Training and reported the experiences they had received through their terms, had prepared them well for practice within the hospital (JD102E, JD103E, JD104E, JD105E, JD106E, JD107E, JD109E, JD110E, JD111E). Three respondents indicated they felt prepared mainly in those specific disciplines in which they had practised (JD101E, JD110E, JD111E). A broad range of patients was reportedly seen through the terms. The majority of respondents were happy with the degree of hands-on management and responsibility of patients they were given (JD102E, JD103E, JD104E, JD105E, JD106E, JD109E, JD110E, JD111E). One junior doctor reported that the level of independence he/she was allowed varied depending on the supervising consultant (JD106E).

In some terms the junior doctors reported they would have liked to do less paperwork and gain more experience in practical procedures (JD110E, JD111E). One respondent reported that he/she felt more prepared for practice within the hospital as a result of the experiences undertaken within a regional centre during the intern year (JD108E). The respondent indicated he/she had received more practical and hands-on experience in a broader range of disciplines in the regional hospital.

8.2.2 Hospital 2

The Director of Clinical Training at Hospital 2 stated that the experiences received by the junior doctors at this facility were good preparation for whatever they might do in the future (DCT201M). The Medical Education Officer responded similarly reporting that the relieving term, which scattered junior doctors throughout the hospital was a good experience for them, and in the terms there were good supervisors (MEO201M). In the end-point interviews, it was reported that the group of junior doctors were quite well prepared for practice within the hospital setting (DCT201E). The doctors had received a broad general experience over the two years spent in the hospital which had been achieved through completion of the set terms within their program (MEO201E).

Most of the junior doctors agreed with the program facilitators and felt that they were prepared for hospital practice (JD201E, JD202E, JD203E). It was thought that they had a broad range of experiences and had seen a variety of clinical presentations. All of the respondents indicated that they had had a significant amount of independence and responsibility for decision-making as they had worked on-call, nights and on some occasions were the only doctor present on the wards (JD201E, JD202E, JD203E, JD204E, JD205E).

The respondents were divided with regard to the value of this level of independence. Some thought they had a good balance of independent and supervised practice (JD201E, JD203E, JD204E) and others were uncomfortable with the degree of independence they were given (JD202E, JD205E). Again, this appeared to be dependent on the supervising consultants or the availability of senior staff. Two respondents reported that the consultants were generally available via telephone for back up if required (JD203E, JD204E).

8.2.3 Hospital 3

In the mid-point interviews, the program facilitators both reported that variable experiences were being received by the junior doctors (DCT301M, MEO301M). The hospital was experiencing excessive staff turnover which

resulted in shortages which were impacting on the support, supervision and teaching that was available for junior doctors. One of the program facilitators commented:

> 'We've had some variable experiences… not so much the quality of staff but just numbers and people coming and going and having to engage locums. There are occasionally some shortages and therefore the experiences are detracted (sic), but I think at the end of the day they've sort of all had good experiences' (DCT301M).

The program facilitators reported that on some occasions the junior doctors received relevant experiences. However, it was reported that at other times they were not receiving exposure to a range of presentations and were not gaining much 'hands-on' experience. Despite these challenges, at the end of the trial, the program facilitators both agreed that the junior doctors were well prepared for practice within a supported hospital setting. The junior doctors had developed skills in managing patients, were able to recognise their limitations and were making effective use of resources. The Medical Education Officer commented:

> 'In a well supported hospital setting I think they are reasonably well prepared, but I think that is by the grace of God. We do have an extremely high standard amongst this cohort, so they are clear thinking, methodical people. They know when they are out of their depth, they know resource avenues, they can quickly identify who they should talk to, to get advice if they are in a difficult situation. That level headed team approach that they all demonstrate is what makes them well prepared. I can't say it is because of the great training that they have had here, because it hasn't been great, particularly for this PGY2 year' (MEO301E).

All of the junior doctors at Hospital 3 perceived that they were prepared for practice within the hospital setting (JD301E, JD302E, JD303E, JD304E).

However, the respondents reported variable experiences in their terms, which impacted, on their preparation. Similar to responses from the program facilitators, the group members identified issues with staff shortages and inadequate supervision, which negatively affected the amount of teaching and learning they received in some terms. Also as a result of these issues, two of the junior doctors reported they were required to work in positions above their level of experience and expertise (JD301E, JD302E). These doctors commented that they felt uncomfortable working in these higher positions. While one respondent identified that a benefit of increased independence was a boost in confidence, the doctor also reported that the junior doctors sometimes felt uncomfortable with the level of independence and inadequate supervision. The junior doctor stated:

> 'Sometimes I feel a bit uncomfortable working in a senior position, but on the other hand, that does give you more confidence for the future, because you learn as you go, so it's good in one way' (JD301E).

Most of the junior doctors reported seeing a broad range of presentations during their terms (JD301E, JD303E, JD304E).

8.2.4 Hospital 4

The Director of Clinical Training at Hospital 4 indicated that the experiences being received by junior doctors were preparing them well for practice within that hospital. The DCT reported that a term in the Emergency Department was the best preparation for the junior doctors, as they were exposed to a broad range of presentations (DCT401M). The respondent commented:

> 'I think the best term still, is in the Emergency Department and can prepare them the best. They see a big range of different people coming through the door. As well I think the emergency department is really a simulation of what they are going to experience in other places' (DCT401M).

In the end-point interviews the respondent again reported that the junior doctors were well prepared for practice within the hospital (DCT401E).

The junior doctors at Hospital 4 agreed with the program facilitator and perceived that they were prepared for practice within the hospital (JD401E, JD402E, JD403E, JD404E, JD405E). However, the experiences they had received in getting to that point were variable. All of the respondents reported having a significant amount of responsibility, independence and autonomy that had had both positive and negative impacts. There was minimal supervision and support due to the absence of senior consultants (JD401E, JD402E, JD403E, JD404E, JD405E). This resulted in the junior doctors having to act in positions above their level of experience and expertise and take responsibility for directing much of their own learning. This situation reportedly had positive aspects, as it was seen to be contributing to preparation for independent practice in the future. One junior doctor commented:

> 'I think that in Hospital 4, as a junior doctor, you'd probably carry a fair bit more autonomy and responsibility than what perhaps doctors in other areas would have to. I guess that has both positives and negatives. Obviously, the positives are that you know you get in there and actually learn stuff. Probably learning things by immersion, by getting in there and actually seeing stuff and having to make decisions. I think that the negatives of that are sometimes it would be good to have a bit more guidance and sometimes, probably the autonomy is a little bit more than one should have to carry' (JD401E).

And from another:

> 'It's got its drawbacks how it is. I mean it's nice having that responsibility and being trusted like that. It would also be nice just to have someone close by, to you know run a query by every now and then, or just to make sure you are doing a procedure correctly' (JD403E).

Again, having too much responsibility for patient management was an issue for the junior doctors. The respondents reported seeing a broad range of presentations during their terms. One respondent reported not having the opportunity to undertake a term in obstetrics (JD402E). Another junior doctor had predominantly undertaken practice only in the emergency department (JD403E). Neither of these respondents reported being dissatisfied with the value of their experiences.

8.3 PREPAREDNESS FOR PRACTICE IN REMOTE SETTINGS

The extent to which the program strategies impacted upon the junior doctors' preparation for practice in rural or remote communities was explored. Some junior doctors were required to undertake rural practice during the year of the trial. Positive and negative feedback on these experiences was provided and provided first hand information on how prepared they were for practice.

8.3.1 Impact of Rural Exposure

As reported in section 6.4 just over half of the respondents in this study (15 of the 25) had been required to undertake country relieving and rural terms. When asked if the placements were voluntary or compulsory, the majority of respondents who had undertaken placements indicated that it was somewhere in between (JD101E, JD111E, JD301E, JD302E, JD303E, JD304E, JD401E, JD402E, JD404E). The junior doctors reported that relieving duties were expected, and while it was possible to refuse, this was not really seen as an option. One respondent commented:

> 'It's meant to be voluntary, but it's more compulsory. They roster you on and if you don't want to go, and you tell them, they frown upon it. It is technically voluntary' (JD304E).

Two respondents indicated they had refused to undertake the country relieving requested of them by their respective hospital administrators (JD108E, JD202E).

8.3.1.1 Reflection on Experiences

There were mixed feelings from the junior doctors about having to undertake country relieving and rural terms. One junior doctor was concerned about the appropriateness of a second year doctor being the sole practitioner in a small country town. The respondent commented:

> 'The support was adequate, but being the only doctor in a town of 4,000 people, as a second year doctor, I thought was dangerous and inappropriate' (JD402E).

Respondents described a range of positive and negative experiences received through their placements. While initially most were not comfortable with their impending placements, they were less negative on completion and after having time for reflection. This was generally as a result of nothing going wrong. One junior doctor commented:

> 'Of course the experience from working in those environments, I am sure has made me a better doctor you just wonder about your ability in terms of what happens. Luckily I didn't get any multi-traumas or anything like that' (JD302E).

Another respondent mentioned anxiety over legal implications of adverse events, which had happened to other junior doctors (JD301E). This doctor was concerned about the support that would be available if a similar situation occurred to him/her while in a solo-doctor practice.

8.3.1.2 Positive Aspects

Positive aspects of rural placements and relieving included the ability to cope, support received from staff on-site and via telephone, working with communities and other general benefits. Being able to cope with the presentations in rural practice was a great confidence booster for a number of junior doctors (JD103E, JD106E, JD107E, JD109E, JD111E, JD301E, JD302E, JD303E, JD304E, JD401E, JD403E). Recognising their own abilities and limitations, being able to manage a variety of situations and making

decisions developed their independence. Upon reflection these eleven doctors recognised that they did have the ability to cope on their own.

It was reported that there were generally very few senior staff on-site and none in the remote communities (JD103E, JD107E, JD109E, JD111E, JD402E, JD403E, JD404E, JD405E). The junior doctors were supported by nursing and administrative staff on-site and medical support via telephone contact with their base hospitals, referral hospitals or the Royal Flying Doctor Service (JD103E, JD301E, JD302E, JD304E, JD401E, JD402E, JD403E, JD404E). About two-thirds of the respondents were satisfied with the support that they received over the phone.

One respondent revelled in the challenge of practising medicine with limited clinical resources (JD103E). Other positives of rural practice noted were the opportunity to provide a service to communities which had a good attitude and appreciated the effort (JD103E, JD404E). Other benefits reported by respondents included the provision of accommodation and a car (JD402E), and financial compensation (JD405E).

8.3.1.3 Negative Aspects

There was a degree of anxiety experienced by some respondents in having to deal with emergency presentations, for example, a multi-trauma (JD103E, JD107E, JD401E, JD404E). Other negative aspects were solo-practice in rural communities and an inadequate level of senior staff at the secondment hospital resulting in poor supervision (JD103E, JD107E, JD109E, JD111E, JD304E, JD402E, JD403E, JD404E, JD405E). Resourcing and morale at the relieving post (JD103E, JD109E, JD401E, JD402E, JD403E, JD404E, JD405E), and assimilation difficulties (JD103E, JD107E, JD304E) were also problems.

While it was expected that there would be no on-site supervision at primary care centres in remote areas, several relievers who were seconded to undertake a rural term at a secondary hospital were expecting a certain level of senior support. However, it was reported that there were major staffing shortages in

the senior ranks and therefore supervision and support was limited (JD103E, JD107E, JD109E, JD111E).

Just under half of those who undertook rural practice reported conditions and resourcing as negative aspects of their placements. Long working hours, heavy workloads, being on-call 24 hours a day and low morale were mentioned as unattractive conditions. In some primary care centres there was no access to radiology and pathology services, which made practice difficult (JD403E, JD405E). It was also reported that there was no access to on-line resources or even text books in some locations (JD401E). Two respondents identified issues with assimilation into the relieving hospital and community (JD107E, JD304E). One respondent mentioned difficulties integrating and working with Aboriginal communities (JD304E). Another respondent suggested that more effort was required to assist relieving doctors to fit in to the hospital and town, which might facilitate more positive experiences and consideration of rural practice in the future (JD107E).

8.3.1.4 General Practice

Of those who had undertaken country relieving or rural terms, just under half were required to undertake general practice, including all junior doctors from Hospital 4 (JD103E, JD302E, JD401E, JD402E, JD403E, JD404E, JD405E). The majority of respondents who had undertaken general practice reported that overall their experiences were positive (JD103E, JD401E, JD402E, JD403E, JD404E, JD405E). It was a new experience for most respondents who described the environment to be different from practice in a hospital setting (JD403E). Two respondents highlighted that support from nursing and administrative staff made their transition easier (JD402E, JD405E).

Negative issues identified by the group included high workload, lack of experience using computerised management systems (JD401E, JD403E), concerns surrounding indemnity insurance (JD302E), heavy workloads (JD402E) and personal dissatisfaction (JD403E, JD404E). Two respondents indicated that they found the general practice component boring and not fulfilling (JD403E, JD404E). One respondent also commented that often rather

than see the locum junior doctor, patients would wait until their regular doctor returned. The junior doctor commented:

> 'In (Remote Centre 3) you do private general practice. I'd say it was positive. It feels a little bit like - a waste of time is really not fair - but people don't come, they don't come when the junior doctor is doing the locum and when they do come, they come with very GP type issues and often you end up saying, look when the regular doctor gets back talk to him about that sort of thing. It's not very fulfilling' (JD404E).

One respondent indicated that he/she had been asked to undertake private general practice and had refused for financial reasons (JD304E). The respondent stated he/she did not wish to work for other people to make money.

8.3.2 Perceived Preparedness

The program facilitators and participants were asked to comment as to whether the rural experiences described above, in addition to the other activities of the program, had any impact on the preparedness of junior doctors for rural practice. The program facilitators were asked in general, how well prepared the current group of junior doctors would be for practice. The junior doctors were also asked how well prepared they perceived they were for practice and whether the experiences received through the terms, the education program and any courses in which they had participated had any impact.

8.3.2.1 Hospital 1

The Director of Clinical Training at Hospital 1 reported that the general experiences available to junior doctors prepared them well for practice in less supported settings (DCT101M). In the end-point interviews, the Director of Clinical Training stated that the junior doctors were well prepared to deal with the majority of conditions and illnesses that would present in a remote or rural setting (DCT101E). While it was reinforced that junior doctors should not be staffing solo-doctor practices, this respondent perceived that they were better prepared than at the end of their first year. However, it was recognised that there were still gaps in knowledge and extra training would be needed

particularly in areas such as Indigenous Health and Tropical Medicine (DCT101E). Presentations in these disciplines were not common in this hospital.

The majority of junior doctors at Hospital 1 reported that they were quite confident and prepared for remote practice (JD102E, JD103E, JD104E, JD107E, JD108E, JD109E, JD111E). Some respondents indicated that they would not feel confident practising in some disciplines. These disciplines were predominantly those in which they had not undertaken a term in either their first or second postgraduate year (JD101E, JD105E, JD106E, JD110E).

Several respondents mentioned disciplines in which they lacked experience. They also reported that a term in emergency medicine would be the best preparation (JD102E, JD103E, JD105E, JD108E). Other responses focused on terms in obstetrics (JD105E, JD106E, JD110E), paediatrics (JD102E, JD105E), and anaesthetics (JD102E, JD108E). One respondent suggested that very few people would really be confident for remote practice, although they would be able to cope with the situation. The junior doctor stated:

> 'I don't think anybody feels confident when they go to a new place but I wouldn't feel overly confident no. I think I would be safe, I am confident that I wouldn't do anything that would put anybody in danger' (JD105E).

Another junior doctor highlighted the difference between the environments in their primary hospital compared to that in a remote centre. While he believed he was prepared for most clinical presentations, the availability of other support and services was potentially an issue. The respondent commented:

> 'I think it [the terms] has probably given me a fairly good base to cover 70% of things, but there is still a big difference to the practice of medicine in an environment like this, compared to sort of (sic) a fairly major hospital in a big city where you have not only access to a lot of

> things in your hospital but access to bigger and better things at other hospitals only 20 minutes up the road.' (JD107E).

Two respondents stated that the practical experience they had received through their terms had prepared them much better for rural practice than the education program (JD103E, JD107E). One respondent commented:

> 'I think it's probably more just the little gems of information that you pick up along the way in your everyday work that have been the most useful to keep your head above water' (JD107E).

Three respondents had completed courses relevant to this study (JD103E, JD109E JD111E). A quarter of the respondents had participated in the in-house neonatal resuscitation course. Two junior doctors had participated in the Rural Preparatory Program. These junior doctors indicated that while the rural course was useful, it only covered the basics and was content heavy. The workshop also had its limitations when it came to the practicalities of remote practice (JD109E JD111E). One respondent noted:

> 'There is only ever so much (sic) you can learn in two days and there is no way it can prepare you for every situation. They went over the basics… which is useful, but again you can only do so much and its experience that teaches you how well to handle most things in a rural setting or where you are on your own where anything can come in the door' (JD109E).

One respondent had completed the Emergency Life Support Course and reported that it was very useful, assisted with increasing confidence and also the ability to make decisions quicker (JD103E). While the remainder of the junior doctors had not completed any courses relevant to this study, just under half of the respondents stated that they perceived participating in them would assist in preparation for remote practice (JD104E, JD105E, JD106E, JD107E, JD110E). Two respondents were not sure whether participation in courses would have any impact (JD101E, JD102E).

Only one of the junior doctors from this facility reported receiving any orientation information prior to leaving for rural practice. Of all those who had undertaken rural practice, most indicated that they did not need any additional orientation information.

One respondent stated that access to other resources however, would have eased the transition into the rural post. Such resources included access to the Internet, a phone, and transport (JD103E). Overall, clinical practice and experience in certain disciplines were seen to be the best preparation for remote practice. Education and orientation were reported to not have any impact.

8.3.2.2 Hospital 2

The program facilitators at Hospital 2, located in a rural area, stated at both the mid-point and the end of the trial, that the experiences being received in the hospital were providing junior doctors with a good basis for practice in remote communities (DCT201M, DCT201E, MEO201M, MEO201E).

At mid-point, the Director of Clinical Training indicated that the group was much more confident in relation to rural practice than what they were at the end of the previous year (DCT201M). However, the Medical Education Officer reported that while the junior doctors' practice might be clinically sound, the group had not developed certain professional skills and were not prepared personally for what was required. The respondent commented:

> 'Obviously they need the fundamental skills. I think it does prepare them (for rural practice) in that regard and I also think that the junior doctors themselves are smart enough to take that self education under serious consideration when they know they are going out bush… I don't know if they would be really well prepared for the level of responsibility or the quick decision making that's required or the solo decision making. You know they are on their own trying to make decisions. I am not sure that they are well enough prepared to ask for

help and to find resources like your website and books, libraries and just other personnel' (MEO201M).

At the end point, the Medical Education Officer reported that the junior doctors had received two years general experience through the terms they had completed (MEO201E). Both program facilitators reported that while the junior doctors would be competent in rural practice, they would not be confident (DCT201E, MEO201E). It was stated by one respondent that personality issues impacted on the junior doctors resulting in an overall lack of confidence in their ability to practise independently. The respondent commented that the doctors had not realised that they had 'grown up' a lot (DCT201E).

At Hospital 2, the junior doctors reported variable experiences, which they perceived had prepared them for rural or remote practice. Just over half of the junior doctors said they felt reasonably prepared (JD201E, JD202E, JD204E), with the remainder saying they would probably cope as a result of 'being thrown in the deep end' (JD203E, JD205E). It was reported that the level of independence, limited support and greater degree of responsibility as a result of being short staffed contributed to the development of junior doctors. One respondent commented:

> 'Having been thrown in the deep end a lot, you learn by baptism of fire. While they say that people are willing to come in, in certain departments they are not, because when you do call they say they are not coming in. It makes you basically have to trust your own independence and do what you think is right. So that will be preparing you, ultimately, for rural practice, that baptism of fire again' (JD205E).

One junior doctor stated that the term in the emergency department was the best preparation for rural practice (JD204E), while another said working at night increased confidence significantly (JD203E). Another respondent indicated that his/her preparedness depended on attitude and 'willingness to have a go' (JD202E). It was also reported by a junior doctor that while he/she

did get more access and involvement in managing patients in rural hospitals, than in bigger hospitals, there were still some gaps in what had been learned (JD201E). For example, this respondent had not had the opportunity to apply many plasters, or manage airways (JD201E).

The majority of junior doctors reported little or no impact in relation to remote preparation, as a result of the education sessions available within the hospital (JD202E, JD204E, JD205E). They commented that there was little focus on remote practice. Two respondents stated that education did have some impact on their perceived preparedness, although one stated that education did not occur regularly (JD203E) and the other stated there was little in the way of practical skills sessions (JD201E). One respondent reported learning more in the terms than through the education program (JD205E).

All respondents indicated that the courses in which they had participated had contributed to their perceived preparedness for remote practice (JD201E, JD202E, JD203E, JD204E, JD205E). Although one respondent had not attended any in his/her second postgraduate year, he/she had participated in courses earlier in his/her career (JD204E). Three junior doctors had participated in the QRMSA Rural Preparatory Program (JD201E, JD202E, JD203E). One participant described the course as 'fantastic' because it was fairly focused and very well organised (JD203E). Another stated that only half of the course was relevant and that it was too 'content heavy' (JD201E). The third, reported that the rural program was more of a refresher of skills already learned, but it was good to ensure that procedures were being done correctly (JD202E).

None of the junior doctors at Hospital 2 had undertaken rural practice during the year. Hence, the orientation to rural placements strategy was not implemented. Both the program facilitators and the junior doctors perceived the junior doctors were reasonably prepared for rural practice. Preparation was a result of clinical experiences received through completion of terms in a range of disciplines. The terms offered as part of the set program for those in their second postgraduate year were paediatrics, obstetrics and gynaecology,

emergency medicine, internal relief and a part term in anaesthetics. Educational activities reportedly had little impact on preparation for rural practice. Participation in courses was perceived to have contributed to the junior doctors' preparation.

8.3.2.3 Hospital 3

In the mid-point interviews, one program facilitator expressed concern as to how well the experiences being facilitated at Hospital 3 would prepare the junior doctors for practice in more remote settings (MEO301M). The respondent indicated that the junior doctors were not receiving access to adequate training within the hospital, which was located in a rural setting.

At the end of the year, both of the program facilitators reported that the group of junior doctors would be quite well prepared for practice in less supported, settings (DCT301E, MEO301E). Both respondents indicated that the doctors' preparedness was a result of their personal characteristics more rather than from the clinical experiences they had received. The doctors were mature enough and had taken responsibility for their own learning. The Director of Clinical Training noted:

> 'The ones [PGY2s] we've got are actually quite competent, but I think our current bunch of second years are actually an unusually talented group… and they have gone out of their way to develop competencies but that has been to a fair extent their own efforts to and their own inherent talents' (DCT301E).

It was also stated that because of the variable experiences received through the terms, some junior doctors might not be competent in some areas. They were however, able to recognise their limitations. The Medical Education Officer commented:

> 'I think it's their personal traits that would make them well prepared. Clinically they are all very sound but they all recognise that they have clinical limitations' (MEO301E).

All of the junior doctors in Hospital 3 had been required to undertake practice in a rural or remote community during their second postgraduate year. The junior doctors reported that overall they felt quite prepared for practice in a remote community (JD301E, JD302E, JD303E, JD304E). One respondent indicated that he would struggle if required to practise in a community outside of the district in which he was currently located (JD304E). This respondent stated that knowing the consultants to whom patients were being referred, and who were providing support, made a big difference.

One junior doctor reported receiving variable experiences in the terms he/she had undertaken, which had impacted negatively on his/her preparedness. However, overall the junior doctor still felt quite confident (JD302E). A further respondent mentioned that the independence he/she was given in developing management plans and decision-making assisted in preparing him/her for future practice (JD303E).

All respondents agreed that the education program had had little impact on their preparation for rural or remote practice (JD301E, JD302E, JD303E, JD304E). It was reported that there was little formal teaching (JD301E), and it was not focused on remote practice (JD304E). For one respondent experiences received within the terms had had a greater impact on his/her preparation. The junior doctor commented:

> 'Not really, no [impact from education]. It is more the clinical practice and what you do hands-on' (JD303E).

The junior doctors reported that the courses in which they had attended had contributed to their perceived preparation for rural practice (JD301E, JD302E, JD303E, JD304E). Courses were particularly beneficial for learning and improving practical skills and gaining confidence (JD301E, JD302E, JD304E). The majority of junior doctors had participated in the Advanced Paediatric Life Support Course and all rated it as excellent. Two respondents commented that the QRMSA Rural Preparatory Program, held in a regional centre, was

excellent (JD301E, JD304E). However, another junior doctor stated that it was theoretically heavy (JD302E). It was stated that after experiencing particular presentations in practice more confidence was gained (JD304E).

Both the program facilitators and junior doctors reported that limited orientation had occurred. Three quarters of the junior doctors stated that additional orientation information would have been useful. This included details about the facilities at the hospital (JD302E), local hospital policies and procedures (JD304E), a list of contacts for on-call (JD301E), and the arrangements for private practice including billing (JD302E, JD304E).

Two respondents mentioned other logistical preferences, which would have eased their transition into the rural post. There was a preference for access to a mobile phone (JD304E), and also to computers and on-line resources (JD303E).

Overall, it was evident that again clinical experience was the key strategy in facilitating junior doctors' preparedness for rural practice. This was supplemented by participation in courses. Again education and orientation activities had no reported impact on preparation.

8.3.2.4 Hospital 4

The program facilitator at Hospital 4, located in a remote area, stated that the junior doctors were well prepared for practice in solo-doctor remote communities (DCT401E). The experiences received had reportedly taught them to be confident practitioners who could function independently. The DCT commented:

> 'I think they are much better prepared than (sic), in comparison with any other doctor in Australia. They have had the time and exposure to difficult situations in (Hospital 4). They were taught to think for themselves and make decisions without being babysat all the time by senior colleagues' (DCT401E).

All of the junior doctors in Hospital 4 had been required to undertake practice in remote communities during the trial. Over half of the respondents indicated they were confident for remote practice (JD401E, JD404E, JD405E). The experiences the junior doctors had received in their primary hospital had helped in their preparation. The availability of support and exposure to common presentations in the district including Indigenous Health and General Practice assisted in preparation for patients seen in the remote centres.

One junior doctor stated that for them preparation was reversed, that is, the experiences received in the remote centres early in the year had prepared him for practice in Hospital 4. The junior doctor commented:

> 'Well it is probably the other way around actually, because I pretty much started with relieving. I did a couple of shifts in ED [Emergency Department] and then I was out for a week, a couple more shifts in ED and then I was out for another week. So I was probably more confident coming back to ED because I had been out by myself for a couple of times already in (Remote Aboriginal Community 1) or (Remote Centre 4) so it was actually a relief coming back to the ED and having a few other people around' (JD403E).

The remaining junior doctor did not feel very well prepared for remote practice, as the majority of patients in remote centres presented with general practice oriented conditions and illnesses (JD402E). The respondent stated he/she had not any general practice training.

Another respondent noted a gap in his/her experience prior to going into rural practice (JD401E). This junior doctor had not undertaken a term in obstetrics and gynaecology and had had little experience in the area. The doctor stated being 'a little bit scared' of any obstetric presentations (JD401E). Now having completed a term in this discipline since returning from rural practice the junior doctor reported he/she would feel more confident for future practice (JD401E).

The majority of junior doctors reported the education program had little impact on their preparation for remote practice (JD401E, JD403E, JD405E). It was stated that there needed to be more practical skills sessions (JD403E) and more of a focus on general practice presentations (JD402E).

Three junior doctors had participated in courses during the year. The emergency courses undertaken by the junior doctors (EMST and APLS) were said to be very useful in their preparation for remote practice (JD401E, JD402E, JD403E). Those who had not undertaken courses stated that they desired to complete emergency courses as well (JD404E, JD405E). Three respondents perceived that relieving locations within the district commonly had emergency and trauma presentations (JD401E, JD404E, JD405E).

Only two of the junior doctors at Hospital 4 reported that they had received orientation before they left their primary hospital. The junior doctors stated that they did not prefer any additional orientation information. However, two respondents mentioned they would have liked more clinical training in emergency medicine before going to relieving positions (JD402E, JD403E). One respondent would have felt more comfortable with further training in obstetrics (JD402E).

Similar to the rural case study hospitals, the program facilitator and the junior doctors at Hospital 4 perceived that the group was prepared for remote practice. Again this was a result of variable experiences. Several reported that terms and clinical experience had contributed to their preparation. One junior doctor stated that remote practice early in the year had had a significant impact. Education and orientation did not have much impact on preparation, however courses were perceived to have contributed to confidence levels.

8.4 FEEDBACK FROM RURAL SCHOLARSHIP HOLDERS

This study found that of the twelve junior doctors holding a rural scholarship, nine were not satisfied with the scheme (JD301E, JD302E, JD303E, JD304E, JD401E, JD402E, JD403E, JD404E, JD405E). During the interviews one junior doctor indicated that he/she had already bought out of the scheme

(JD304E), another indicated that he/she would be buying out at the end of the year (JD401E), and a further one did not think he/she would complete the bonded time (JD404E).

8.4.1 Scholarship Benefits

A benefit of receiving a rural scholarship was reportedly that it facilitated something that the junior doctors were planning to do anyway, that was, practise in a rural area (JD205E). They could do that with additional bonuses. Three respondents identified benefits in having scholarships to assist in completing university (JD204E, JD205E, JD403E). One junior doctor stated:

> 'I needed it to do medicine. I am from a rural area, and have an interest in rural health. So it was just a means of doing something I was hopefully going to do anyway' (JD205E).

Other benefits highlighted by respondents included cooperation from the Office of Rural Health, Queensland Health, in arranging placements, facilitating accreditation for vocational training with the Royal Australian College of General Practitioners and funding participation in procedural and skills courses (JD203E).

8.4.2 Issues with the Scholarship Scheme

The majority of respondents were not satisfied with the scheme and there were a number of issues raised, including disagreement with some of the benefits identified by other respondents. One junior doctor commented that the remuneration while at university was not sufficient (JD302E). Other respondents reported having little or no contact during the year from staff members at the Office of Rural Health who administer the scheme. One respondent stated that the scholarship was 'basically null and void in the background' (JD205E) and another felt 'completely abandoned' (JD404E).

Respondents reported dissatisfaction with the processes for placement allocation and lack of transparency surrounding decision-making (JD301E, JD403E, JD405E). Several respondents thought their preferences had not been

taken into consideration. One respondent indicated he/she had experienced much informal communication but received no official advice, which was a cause of frustration (JD405E). Another respondent also disagreed with others indicating that he/she had received limited assistance in coordinating vocational training with scholarship requirements (JD303E).

The other major issue was that respondents perceived that the scheme administrators did not have enough input into planning or monitored recipients and their progress (JD301E, JD302E, JD304E, JD404E). It was reported that scholarship holders were placed in posts with inadequate supervision, insufficient training opportunities and staffing shortages that inappropriately forced junior doctors to take on roles above their level of experience and expertise (JD304E, JD404E).

8.4.3 Strategies to Overcome Scholarship Issues

The respondents had a range of suggestions that they believed would improve the scholarship scheme. An attitude change and more involvement from administrators would assist in ensuring recipients were placed in posts suitable to their levels of experience and expertise (JD405E). Adequate levels of supervision and support would impact on the experiences of junior doctors and ensure their workload was appropriate. More work was needed in making sure junior doctors had positive experiences, which might encourage recruitment and retention into rural careers. One junior doctor commented:

> 'If they want people to be happy with the scheme then they need to make sure that situations they put people in, are suitable. Presumably the idea of the scholarship is to encourage doctors to stay in rural areas and staff rural hospitals. But if they have horrible experiences when they get out there, and they are short staffed and overworked and those sorts of things, they will just get cynical and twisted and leave and buy out. We are very concerned about our staffing levels at [Hospital 4] at the moment and they are not interested, as long as they have bodies in jobs. I have always said that I don't regret having the scholarship

> myself but would I advise someone else to take it, I don't know that I would' (JD404E).

Another respondent stated:

> 'I think initially just not being informed that we would be given last choice, and that we are really filling in. We were made to think it was a really special thing to get the scholarship and then you realise it is just to band-aid the rural doctor shortage' (JD303E).

Other suggestions were to make the placement allocation processes more transparent and consider forward planning to enable junior doctors to plan their futures (JD302E). It was claimed that monitoring should be undertaken regularly to measure the progress and development of junior doctors to ensure that they possessed the relevant skills and were suitable for future placements. Funding and support to attend training courses should be provided to supplement hospital-based training (JD302E). A gradual progression needed to be encouraged through the scholarship years before junior doctors were placed in the more challenging posts (JD304E).

Generally, the scholarship holders involved in this study were not satisfied with the scheme. Various issues were identified and suggestions put forward for how the scheme could be improved. An attitude change of the administrators was thought necessary to make the scholarships seen to be more prized or a benefit (JD405E) rather than just a short-term band-aid solution for rural recruitment (JD303E).

8.5 EXAMINATION OF SELF-ASSESSED COMPETENCY

As the *Supporting Junior Doctors Going Bush* Program aimed to facilitate a minimum set of experiences for junior doctors to attain competencies in a range of core rural presentations, an investigation was undertaken to measure any self-assessed changes, which may have resulted from the program. Measures were taken before and after the second postgraduate year. Respondents indicated their perceived level of competency on a scale from 1 to

6, where 1 indicated they felt very competent managing that presentation independently, and 6 indicating they didn't feel competent at all. Table 43 outlines the results.

Table 43. Self-assessed competencies: changes over PGY2.

Competency Area	**Pre-PGY2**		**Post-PGY2**		**Wilcoxon Sig Test**	
	N	**Median**	**N**	**Median**	**N**	**Actual P**
Head Injuries	14	3.0	20	3.0	11	**0.031**
Trauma	14	3.5	20	3.0	11	**0.033**
Envenomation	14	4.0	20	3.0	11	0.059
Stabilisation for Transfer	14	3.0	20	3.0	11	0.063
Intraosseous	14	5.0	20	4.0	11	0.093
Cardiac Conditions	14	3.0	20	2.5	11	0.120
Asthma	14	2.5	20	2.0	11	0.245
Perineal Repair	14	4.0	20	3.0	11	0.247
Eye Emergencies	14	4.0	20	3.0	11	0.354
Child Abuse	14	3.0	20	3.0	11	0.379
Cryotherapy	14	3.0	20	4.0	11	0.403
ICC	14	3.5	20	3.0	11	0.425
Airway Mgt	14	3.0	20	3.0	11	0.454
Diabetes	14	2.5	20	2.0	11	0.624
Suicide Risk	14	3.0	20	2.0	11	0.632
Depression	14	3.0	20	3.0	11	0.695
Cricothyroidotomy	14	5.0	20	5.0	11	0.726
Family Planning	14	3.5	20	3.0	11	1.000
Prescribing	14	2.5	20	2.0	11	1.000
Radiology	14	3.0	20	3.0	11	1.000

Scale from 1 to 6, where 1 = very competent, and 6 = not competent.

Source: Junior Doctor Questionnaires.

The results were that the junior doctors' perceived their competency had improved significantly over the year, in two areas: management of head injuries ($p < 0.031$) and management of trauma ($p < 0.033$) (where $p < 0.05$, Wilcoxon matched pairs, Exact Monte Carlo test). The next presentation areas where junior doctors reported the most change in competency levels, but not at the 0.05 level of significance, were envenomation, stabilisation of patients for transfer, and insertion of intraosseous needles.

8.6 PRACTICE IN DIFFERENT CLINICAL ENVIRONMENTS

Again through questionnaires, the junior doctors were asked to indicate how well prepared they were for practice in different clinical environments. Environments were divided into five categories based generally on practice size and expected levels of support. Preparedness was rated on a scale of 1 to 6, where 1 indicated they felt very prepared, and 6 related to being not prepared. Tables 44 and 45 outline the results.

Table 44. Preparedness for practice: changes over PGY1.

Environment	**PGY1**		**Pre-PGY2**		**Wilcoxon Sig Test**	
	N	**Median**	**N**	**Median**	**N**	**Actual P**
Solo Doctor Isolated	19	6.0	14	5.0	13	0.254
Metropolitan Hospital	19	2.0	14	2.0	13	0.500
Rural Hospital	19	3.0	14	3.0	13	0.503
Metropolitan GP	19	3.0	14	3.0	13	0.559
Rural GP	19	4.0	14	4.0	13	0.622

Scale from 1 to 6, where 1 = very prepared, and 6 = not prepared.

Source: Junior Doctor Questionnaires.

Table 45. Preparedness for practice: changes over PGY2.

Environment	Pre-PGY2		Post-PGY2		Wilcoxon Sig Test	
	N	Median	N	Median	N	Actual P
Rural GP	14	4.0	20	3.0	11	0.398
Solo Doctor Isolated	14	5.0	20	5.0	11	0.457
Metropolitan Hospital	14	2.0	20	2.0	11	0.511
Metropolitan GP	14	3.0	20	3.0	11	1.000
Rural Hospital	14	3.0	20	3.0	11	1.000

Scale from 1 to 6, where 1 = very prepared, and 6 = not prepared.

Source: Junior Doctor Questionnaires.

At the beginning of the first and second postgraduate years and at the end of the second year the junior doctors felt the most prepared for practice in a metropolitan hospital (median rating 2.0 at each point in time). The respondents were reportedly least prepared for practice in a solo-doctor environment. These results were not significant. Overall, there was no change in preparedness for practice for each environment, reported by the junior doctors.

Similarly, there were no significant changes in responses from the junior doctors in relation to their perceived preparedness for practice in a range of environments over their second postgraduate year.

8.7 LIVING IN DIFFERENT SETTINGS

The junior doctors were asked to indicate their preparedness regarding how comfortable they would feel living in different settings. Settings were divided into three broad categories based generally on population size. Preparedness was again rated on a scale of 1 to 6, where 1 indicated they were very prepared, and 6 related to being not prepared, to live in the setting (see Tables 46 and 47).

Table 46. Preparedness for living: changes over PGY1.

Setting	Pre-PGY1		Pre-PGY2		Wilcoxon Sig Test	
	N	Median	N	Median	N	Actual P
Isolated	19	5.0	14	5.0	13	0.485
Metropolitan	19	1.0	14	1.0	13	1.000
Rural	19	3.0	14	2.5	13	1.000

Scale from 1 to 6, where 1 = very prepared, and 6 = not prepared.

Source: Junior Doctor Questionnaires.

Over the first postgraduate year there were no significant changes in how prepared junior doctors were for living in the different settings. Junior doctors were very prepared to live in metropolitan areas at both points in time (median rating 1.0 respectively). Respondents were slightly more prepared to live in rural areas at the beginning of the second postgraduate year (median rating 2.5) than at the start of the first postgraduate year (median 3.0), however this result was not significant.

Table 47. Preparedness for living: changes over PGY2.

Setting	Pre-PGY2		Post-PGY2		Wilcoxon Sig Test	
	N	Median	N	Median	N	Actual P
Metropolitan	14	1.0	20	1.0	13	0.748
Rural	14	2.5	20	2.0	13	0.909
Isolated	14	5.0	20	5.0	13	1.000

Scale from 1 to 6, where 1 = very prepared, and 6 = not prepared.

Source: Junior Doctor Questionnaires.

Similarly before and after the second postgraduate year respondents were very prepared to live in metropolitan areas (median 1.0 respectively). The respondents again felt slightly more prepared to live in rural areas after their second postgraduate year.

8.8 INTENTIONS FOR VOCATIONAL TRAINING & FUTURE PRACTICE

Quantitative data were collected from the junior doctors to assess whether they had made decisions regarding future vocational training and whether they intended to practise in rural locations in their future careers. Data were collected through questionnaires implemented at three points in time to assess whether decisions might have been made in the first postgraduate year or perhaps as a result of the *Supporting Junior Doctors Going Bush* Program implemented during the doctors' second postgraduate year.

Table 48 outlines whether junior doctors had made any decisions regarding vocational training over their first two postgraduate years. Prior to beginning their internship, none of the junior doctors had enrolled in a vocational training program. As time progressed more of the cohort had joined a program, and at the end of the second postgraduate year, eleven respondents (55%) had joined a vocational college, with a further seven (35%) having also made the decision to join.

Table 48. Intentions for vocational training.

Status	**Pre-PGY1**		**Pre-PGY2**		**Post-PGY2**	
	n	**%**	**n**	**%**	**n**	**%**
Yes, have enrolled	0	0.0	4	28.6	11	55.0
Yes, will enroll	15	78.9	9	64.3	7	35.0
Undecided	4	21.1	1	7.1	2	20.0
Total	19	100.0	14	100.0	20	100.0

Source: Junior Doctor Questionnaires.

At the conclusion of the second postgraduate year, of those who indicated they had or would be joining a vocational training program, six were enrolling into general practice, three into emergency medicine, two into surgery and one each into obstetrics and gynaecology, physician, dental and radiology programs. Five were still undecided as to the specialty in which they wished to practise.

Future practice was separated into five categories based on training timetables, and short and long-term career options. The junior doctors indicated their intentions on a 6 point scale, where 1 indicated they were very likely, and 6 indicated they were not likely, to practise in a rural location in each particular stage of their career.

Tables 49 and 50 outline the results examining any significant changes in the junior doctors' intentions for future rural practice over their first and second postgraduate years.

Table 49. Intentions for future rural practice: changes over PGY1.

Career Point	**Pre-PGY1**		**Pre-PGY2**		**Wilcoxon Sig Test**	
	N	**Median**	**N**	**Median**	**N**	**Actual P**
Future up to 5 years	17	4.0	14	5.0	11	**0.014**
Registrar years	16	2.5	14	4.0	10	**0.039**
Prevocational years	15	2.0	14	2.5	9	0.254
Locums	17	3.0	14	3.0	11	0.257
Future over 5 years	18	5.0	14	5.0	12	0.625

Scale from 1 to 6, where 1 = very likely, and 6 = not likely.

Source: Junior Doctor Questionnaires.

After the junior doctors' first postgraduate year, there was a significant change regarding future intentions at two career points. The respondents reported that they were less likely to spend time in rural areas in their future careers for up to five years after vocational training ($p < 0.014$, n=11), and also as registrars ($p < 0.039$, n=10).

Table 50. Intentions for future rural practice: changes over PGY2.

Career Point	Pre-PGY2		Post-PGY2		Wilcoxon Sig Test	
	N	Median	N	Median	N	Actual P
Locums	14	3.0	18	3.0	10	0.161
Future over 5 years	14	5.0	17	4.0	10	0.401
Future up to 5 years	14	5.0	17	5.0	11	0.440
Prevocational years	14	2.5	19	2.0	11	0.596
Registrar years	14	4.0	17	5.0	11	0.604

Source: Junior Doctor Questionnaires.

At the conclusion of the second postgraduate year, the cohort were even less likely to spend time in rural areas during their registrar years, however this was not significant. The median of responses dropped from 4.0 at the beginning of the year to 5.0 at the end of the year. The group also reported they were slightly more likely to spend their prevocational or junior years in a rural location as the median rose from 2.5 to 2.0 over the year. Again, this result was not significant.

8.9 SUMMARY

Despite outcomes from phase one which were critical of the requirement for postgraduate year two doctors to undertake country relieving and rural terms, just over half of the junior doctors in this study had done just that. While it was reported that overall experiences were generally positive, there was much anxiety prior to placements.

Overall, the program facilitators believed that the junior doctors were receiving good experiences at the case study hospitals. At the end of their second postgraduate year, the junior doctors were considered to be prepared for

practice in supported hospital settings and also for practice in a solo-doctor remote community, if this were required.

The program facilitators reported the terms being undertaken were providing junior doctors with a good basis for clinical practice. Responses from the junior doctors described similar outcomes, however, experiences along the way were variable. Doctors received different levels of support and supervision within the case study hospitals, which were indicated to almost be at the extremes, that is, being well supported to having no support. The doctors reported being prepared for practice as an outcome from experiences in both of these situations. Preparedness resulted from having good supervision and teaching in a well supported learning environment. Preparedness also resulted from having to direct learning themselves in less supported positions. Those in the rural and remote facilities reported staffing issues, particularly shortages, which impacted negatively on support and supervision. Staffing issues led to dissatisfaction by both program facilitators and the junior doctors.

Generally, the junior doctors agreed with the program facilitators about their levels of competence and confidence. However, in one rural hospital the program facilitators reported that the junior doctors were probably more competent than they thought, and lacked confidence in their abilities. The group of junior doctors also expressed low levels of confidence, as some indicated they were 'probably' prepared and the remainder perceived that they would just cope from 'being thrown in the deep end'.

Overall, the junior doctors stated that clinical experiences received through the terms had the most impact on their preparation for practice for both the hospital and remote settings. Courses were also reported to contribute to preparation. Education had very little impact, and most of the activities provided were reportedly not orientated to rural practice.

It was also significant to note that a few junior doctors were so dissatisfied with the rural scholarship scheme that they did not intend to fulfill their obligations, and either had, or were planning on, buying out of the scheme.

This chapter presented quantitative data regarding intentions for future practice, preparedness for practising and living in different environments and self-assessed levels of competency in a range of presentations. Analysis of the data found that very few significant changes had occurred over either the first or second postgraduate years.

Upon completion of their first postgraduate year, junior doctors were significantly less likely to practise in rural areas during their registrar training or early careers after vocational training. They reported that they were even less likely to practise rurally after the second postgraduate year although the difference was not significant.

CHAPTER 9: DISCUSSION

9.1 INTRODUCTION

The research question under investigation in this study was:

> What strategies will prepare early postgraduate doctors effectively for practice in rural and remote communities?

There were three phases of the project which were: 1) Defining the issues; 2) Developing an intervention to address the issues; and 3) Investigating the intervention.

9.2 PHASE 1: DEFINING THE ISSUES

Recently there has been much general discussion surrounding education and training of junior doctors with the release of the Australian Curriculum Framework for Junior Doctors [66]. The most recent studies investigating the experiences of junior doctors in rural and remote practice were over a decade old [49-51]. Therefore, the initial aim of this study was to examine the present situation and to explore what barriers were being experienced currently by Queensland junior doctors, who were required to practise in rural and remote communities.

The first phase of the project was exploratory and data were collected through semi-structured interviews. Analysis verified that junior doctors were still required to undertake practice in rural and remote communities. This was deemed inappropriate by a number of respondents (ARP01, ARP16, DCT09, JD10, MA17, RP18, MEO19). Two respondents stated that before going into rural practice junior doctors should have completed a minimum of at least two years within a hospital setting, during which time, opportunities to learn the essentials should have been available (DCT09, RP18). This outcome indicates some serious differences in the views of policy makers at the State Health Department who were responsible for the country relieving program and the rural scholarship scheme, and those working as junior doctors, or in roles that

supported them directly or indirectly. Policies and programs were not based on the general consensus of the relevant stakeholders.

While the purpose of this study was not to investigate whether recommendations from prior studies had been implemented, there was little evidence that any real changes in support structures had occurred over the last ten years. The data collected in the first phase showed that there still appeared to be significant gaps in preparation and training for junior doctors required to practise in rural and remote communities.

In this study it was found that there was little personal development and clinical preparation provided in the hospital setting. Respondents reported that current hospital-based education and training programs were not preparing junior doctors adequately for rural and remote practice (DCT04, DCT06, JD05, JD10, JD11, JD13, MEO08, MEO12). There was no evidence of any hospital-based general practice oriented teaching or an expansion of practical and procedural skills training, which were suggested by Harvey and Linn et al [49]. There was also not any evidence that previous recommendations aimed at providing a more practical approach to clinical training and pre-arranging formal supervision prior to placements [51] had been implemented.

Results in the first phase of this study identified a number of barriers that influenced the ability of junior doctors to practise competently and confidently when in rural or remote communities. Minimal clinical experience, lack of supervision and on-site support, inadequate orientation and uninformed expectations, limited access to relevant education and training, and the influence of isolation resulted in an overall lack of preparation both professionally and personally.

Strategies were sought that would minimise the impacts resulting from the current barriers and facilitate junior doctors obtaining core rural competencies. The identification of knowledge, skills, attitudes and behaviours that were essential could inform a program and assist in closing the rural training gap. Similar work has been undertaken by a number of other researchers [62-65].

Most of this work addressed the process of defining competencies for general intern training and none focused on identifying those competencies required for doctors in their second postgraduate year who would be practising in rural and remote communities.

Respondents in the first phase of this study were asked to identify the core competencies required by junior doctors for practice in rural and remote communities. Clinical disciplines were identified in which competency should be achieved. Emergency medicine was the priority discipline, followed by obstetrics and gynaecology, paediatrics, and anaesthetics incorporating intensive care. In addition, many specific topics detailing knowledge and skills were stated. Many of these fell into the discipline of emergency medicine.

The areas identified most frequently were basic and advanced life support, intubation, management of acute myocardial infarction and arrest protocols, dealing with trauma / multi-trauma and airway management. Other topics mentioned were grouped into emergency medicine, continuing care and general practice, other professional skills and abilities, or personal attributes.

The results indicated that skills in emergency medicine were the core abilities required for short term rural practice placements for postgraduate year two doctors. One respondent reported:

> '… having junior doctors confident in their emergency skills before they start in the rural areas is paramount. Everything else will be useful but it won't particularly save a life' (JD11).

If the junior doctor was relieving for only a short time and was not competent or confident in dealing with a non-urgent presentation, it was perceived to be appropriate to ask patients to come back when the regular doctor returned. This was not an option in an emergency situation.

For junior doctors who intended spending longer periods in rural or remote communities, the data collected indicated that in addition to emergency skills,

the development of skills and knowledge in a range of common presentations and other issues pertinent to the conduct of general practice should be considered.

This led the researcher to question respondents about the nature of appropriate strategies which might assist junior doctors to obtain these competencies and prepare for rural practice. The Postgraduate Medical Education Foundation of Queensland's (PMEFQ's) accreditation standards outlined a number of processes that were expected to be facilitated in Queensland teaching hospitals to support junior doctors [59]. These standards were used as a basis for exploring the possible integration of rural preparation strategies into existing hospital processes. Questions probed the content and format of four such strategies.

9.2.1 Term Allocations

The four disciplines identified in the preceding section (paediatrics, obstetrics and gynaecology, anaesthetics and emergency medicine) were also identified priorities for term allocations by the respondents in the study. The facilitation of priority term allocations was considered to be an important strategy that would enhance junior doctors' clinical experiences.

The priority disciplines were comparable with the set program of terms that were implemented by the two rural hospitals and approved by the State Health Department to assist junior doctors prepare for rural practice. Terms in obstetrics and gynaecology, paediatrics, anaesthetics and emergency medicine were recommended to be facilitated in the second postgraduate year to complement the experiences obtained through compulsory terms in medicine, surgery and emergency medicine undertaken during internship [59].

9.2.2 Education Activities

Implementing an ongoing education program that integrated issues influencing rural and remote practice was expected to assist junior doctors to develop the required knowledge and skills for rural practice.

The respondents reported that one hour of formal teaching per week was realistic and feasible in the hospital setting. Similarly, Gleason and Daly et al (2007) reported that formal teaching time in the hospital setting was usually about one hour per week [53].

Formal education activities were required to be provided by teaching hospitals for accreditation for early postgraduate training. Such activities were expected to complement clinical experiences [59]. Current directions in medical education involve the use of simulation, which enables clinical trainers to copy real-life situations and make learning more 'real' [9]. The use of simulation also encourages interaction and promotes higher cognitive learning which may lead to more effective changes in performance [112-115]. Despite the benefits of simulation the majority of program facilitators participating in this study did not have any access to any manikins within their hospitals, let alone access to high fidelity teaching models.

The respondents identified topics which were relevant to assist postgraduate year two doctors prepare for rural practice. The topics matched those which were identified in the earlier questions investigating disciplines in which junior doctors should be competent. This validated the earlier responses.

9.2.3 Promote Course Attendance

Promoting junior doctors' attendance at procedural and skills courses would assist in the development of competencies as well as equipping the junior doctor with an expanded set of procedural skills [49, 51]. The courses identified as most useful were those that addressed expanded skills in emergency medicine and paediatrics.

While the literature highlighted that the content of the QRMSA rural preparatory program had been evaluated positively [104], over half of the respondents in the first phase of the study were not aware of its existence. The evaluation report of the programs indicated that the workshops were generally delivered in the metropolitan areas. Perhaps for this reason the respondents in this study, who were based in rural and remote areas, were unaware of it. This

highlights that there was not ready access to some educational opportunities for junior doctors in country areas.

9.2.4 Orientation

The final theme that emerged from the interviews was the need for effective orientation for those undertaking rural practice to address the uninformed expectations held by the junior doctors. Having realistic expectations before arriving in rural and remote areas was pivotal to minimising 'culture shock'. Understanding the nature of the community and how it worked could assist the doctor in settling in and reducing difficulties. A range of topics or necessary information was identified to assist the junior doctors' transition into the rural community. In addition to general community information, other key topics focused on the health and support services available locally, resources that could be accessed, emergency and referral procedures, key contacts and the need for a clinical handover.

The majority of early postgraduate doctors spent their initial years in the hospital setting. Therefore, these doctors were not familiar with working in a general practice setting. Systems and schemes they needed to understand for rural practice included use of computer programs such as Medical Director, billing through Medicare, and appropriate prescribing under the Pharmaceutical Benefits Scheme.

9.2.5 Rural Scholarships

Feedback from rural scholarship holders participating in the first phase of the study demonstrated that many were dissatisfied with the scheme. In addition, the experiences being received during their second postgraduate year were influencing the decisions of some to discontinue with their obligations. Data showed that the junior doctors perceived they were not well supported and were put in situations for which they were not suitably experienced. This outcome is discussed further later in this chapter.

9.3 PHASE 2: DEVELOPING AN INTERVENTION TO ADDRESS ISSUES

In the first phase of the study data was collected to define the issues experienced by junior doctors and to inform the design of a program to prepare the doctors for rural and remote practice. These data were triangulated with other key information and the literature. It was proposed that a combination of the most relevant and successful strategies would guide the development of an appropriate program. There was support from key stakeholder bodies including the Medical Training Review Panel, Confederation of Postgraduate Medical Education Councils and Postgraduate Medical Councils for rural training [11, 75-77, 79]. The Rural and Remote Area Placement Program facilitated positive clinical experiences in a safe, supervised environment although administrative issues hindered implementation [24]. The content of the QRMSA rural workshop was reportedly relevant and was delivered at an appropriate level for postgraduate year two doctors [104]. However, delivery over two days was reportedly too 'content heavy'.

The rural curriculum framework developed by Smith (2004) targeted early postgraduate doctors and incorporated rural practice issues. It did not, however, identify a specific curriculum for preparation for rural practice [90]. The key content of the resulting curricula could be integrated with the rural curriculum framework to incorporate local issues and levels of support services. It could also be adapted for delivery within the hospital setting. Enabling junior doctors to be involved in a range of clinical experiences, through practice or education, in relevant disciplines was identified as a successful strategy.

In phase two the *Supporting Junior Doctors Going Bush* Program was developed. It aimed to assist junior doctors in their preparation for practice in rural and remote communities and to minimise the issues or difficulties faced, by providing a minimum set of opportunities or experiences. The *Supporting Junior Doctors Going Bush* Program consisted of four focused and achievable strategies:

1. Facilitate appropriate term allocations (where possible) - to enhance clinical experience;

2. Provide ongoing education activities - to obtain competencies (knowledge and skills);
3. Promote attendance at courses - to obtain competencies (knowledge and skills); and
4. Provide orientation for those undertaking rural practice - to address uninformed expectations.

The ability to exert influence over the other barriers, lack of supervision and on-site support and the influence of isolation, was not able to be controlled within the scope of this study.

The program was designed to be implemented within the hospital setting. Delivery by local staff aimed to promote local ownership, encourage awareness and participation, and minimise access issues. A website was developed to support the delivery of the hospital-based activities and also provide junior doctors with the opportunity to undertake self-directed learning. It facilitated remote access to the information, materials and resources of the program [134]. A self-directed learning option was adopted in line with adult learning principles to facilitate learner ownership and control [116]. Project materials could be accessed at the learner's convenience. Delivery over the internet was also considered appropriate as access could be facilitated for those who were unable to attend on-site activities and the information could be updated easily.

9.3.1 Program Development

An important aspect of developing the new program was to involve all stakeholders who had an interest in the product [107]. Hence, the participants in phase one were involved in supporting, training or administering the work of junior doctors, either directly or indirectly. Where relevant, participants continued their involvement and participated in implementing the program as part of the trial. As mentioned above, this fostered participants' ownership of the resulting program. Junior doctors were also involved actively in the development of the program. It was essential to involve those who had been required to practise in a rural or remote area and had firsthand experience of

the issues being researched. This ensured that the resulting program activities were relevant and realistically achievable.

From the interviews and further informal communication with stakeholders, it was expected that some difficulties might be experienced in implementing such a program. Ensuring junior doctors had exposure to a range of relevant clinical experiences, through practice or education depended on community demographics, hospital location and level of services, terms available, resources and staffing. Similarly, there was evidence in the literature that education and training programs for prevocational junior doctors were significantly under-resourced [46, 57, 96]. This study was conducted in hospitals located in a semi-metropolitan, two rural areas, and one remote area which allowed for an investigation of feasibility in different teaching environments.

9.3.2 Integrating Rural Context with Content

A key objective of the study was to facilitate the attainment of competencies through a program to assist preparation for rural and remote practice. Worley, Prideaux et al. (2000) highlighted that an important consideration in program delivery was the matching of curricular objectives with teaching location [38]. This was expected to be a challenge in this study. It was predicted there may be difficulties integrating general practice oriented teaching into the hospital environment. The program was delivered in hospitals where the junior doctors were based. These were located in a semi-metropolitan, one remote and two rural centres. Not being located in a rural area made the delivery of a rurally focused curriculum challenging particularly for staff based at the semi-metropolitan hospital.

As this challenge was anticipated, a framework was provided to guide the integration of rural context with clinical content to be delivered through educational activities [90]. However, Hays (2003) warned that care needed to be taken when developing such activities to ensure that rural problem design presented an accurate and realistic picture of rural practice issues [105].

The framework discussed above was included as a resource in the program to facilitate the integration of rural context with clinical content [90]. The framework was to be used for incorporating the differences in regional characteristics and resources available, and to make the resulting education programs unique to each health service district. Characteristics that differed included the presence of Aboriginal and Torres Strait Islander populations, a range of mining industry bases and farming communities, limited support services and large distances to secondary and tertiary hospitals. These characteristics influenced the treatment, management and referral options that were available and appropriate. Emphasis could be placed on developing particular skills or management strategies depending on the length of the placement, the demographic characteristics of the community, or the level of clinical resources and support staff available at the rural facility [90].

9.4 PHASE 3: INVESTIGATING THE INTERVENTION

The third phase of the study aimed to trial the *Supporting Junior Doctors Going Bush* Program. The trial was held in four Queensland teaching hospitals. A case study approach was used to explore the differences that existed within each of the settings. Kirkpatrick's model was used to guide evaluation [119]. Process and impact evaluation was undertaken. The evaluation results were presented from two perspectives: feasibility of the program, and impact of the program. Data were collected through interviews with the program facilitators at the mid and end points of the trial and with the junior doctors at the end point only. Some quantitative data were also collected.

9.4.1 Demographic Details & Experiences Prior to the Program

9.4.1.1 Demographic Details

Demographic information was collected through the questionnaires distributed to the junior doctors. There were no unexpected surprises in the demographic details of the cohort. The majority of respondents were male. Most had entered the graduate-entry medical course directly or very soon after completion of their first degree. The results for marital status were perhaps a

reflection of the slightly older cohort which was a result of having already completed an undergraduate course. Of the cohort, just under half had indicated being either married or in a defacto relationship.

There were a few respondents who were born overseas and had moved to Australia during their schooling years. There were very few doctors in the cohort who had lived in smaller rural or remote communities at any time while growing up or during schooling. The majority of medical graduates in the cohort had lived most of their lives in metropolitan cities or larger centres.

At the time the cohort completed their studies, there was only one university in the state producing medical graduates. There was evidence that the university had not yet undertaken some of the recent initiatives to promote rural careers including recruitment of rural students into the course despite the research evidence for the success of this strategy. [35, 40-44].

9.4.1.2 Scholarship Recipients

Of the cohort, twelve junior doctors held a scholarship. This group represented just under half of the total scholarship recipients in that year. The scholarship recipients comprised all of the junior doctors at Hospitals 3 and 4, and just over half of those based at Hospital 2. An aim of the scholarship scheme was to encourage rural careers. As just under half of the cohort in the study held a scholarship and were potentially attracted to rural careers, it was expected that this might influence the data collected in some aspects of the program. This is explored further below.

9.4.1.3 Experiences at Medical School

The junior doctors identified that rural placements had made the greatest contribution to the development of their current levels of skills and knowledge. During medical school, all respondents to the pre-internship questionnaire had completed at least one placement in RRMA 4 - 7 locations. Rural placements received a mean rating of 1.95 on a rating scale of 1 to 6 where 1 indicated a high contribution, and 6 indicated no contribution at all. This was followed by practical sessions which rated a score of 2.05. This outcome supports findings

in the literature which established that interactive strategies facilitated higher levels of engagement by participants, encouraged deeper learning and were more likely to result in changes [112-115]. On the job training and practical sessions were impacting more on current levels of skills and knowledge than lectures and self-directed learning. Rural placements have been noted to provide more opportunities for hands on learning than placements in metropolitan centres where there is more competition for patients. Similarly clinical placements through the Rural and Remote Area Placement Program were highlighted as successful [24].

There is evidence that positive experiences received through rural placements during medical school contribute to future recruitment into rural careers [35-39]. The data collected in this study supports this outcome as all respondents had completed at least one rural placement and overall placements were rated positively. In addition, just under half of the junior doctors in this study were rural scholarship holders with obligations to practise in rural and remote areas in the future.

9.4.2 Feasibility of the Program

Case study research enabled an examination of contextual factors underpinning the implementation of the *Supporting Junior Doctors Going Bush* Program. The program was implemented in four Queensland teaching hospitals located in semi-metropolitan, rural and remote areas. Barriers to implementation were evident at all hospitals. Despite these difficulties, the four strategies were able to be implemented to a reasonable degree. The feasibility of the program was measured by collecting data from the program facilitators who were responsible for implementing the program locally in each hospital, and the junior doctors who were the participants.

9.4.2.1 Strategy 1: Term Allocations

The early postgraduate years in the majority of Queensland teaching hospitals are structured to offer doctors access to four or five terms within a year. In their intern year, all Queensland medical graduates must undertake compulsory terms in three disciplines; medicine, surgery and emergency medicine [59].

Data from phase one resulted in the identification of priority disciplines in which terms were recommended to be undertaken by junior doctors in their second postgraduate year to assist them to prepare for going into rural practice. The priority disciplines were paediatrics, obstetrics and gynaecology, anaesthetics and emergency medicine. These were similar to the disciplines identified by Iredell (1992) in which further study or training was suggested if going into longer term rural practice.

The program facilitators at the four case study hospitals were asked to facilitate appropriate term allocations, where possible, to enhance the clinical experience of those doctors who would be required to undertake rural practice in the future. Terms in all of the disciplines were available at Hospital 1. At Hospitals 2 and 3, placements in all disciplines were again available to junior doctors. There was no access to a term in paediatrics at Hospital 4. In terms of feasibility, it should therefore have been possible for the first strategy to have been implemented fully in three of the four case study hospitals.

The completion of priority terms by junior doctors was achieved more easily in Hospitals 2 and 3 which were located in rural areas. In Hospital 3 all junior doctors held rural scholarships and were required to undertake country relieving and had completed terms in all of the four priority disciplines. In Hospital 2, again all of the junior doctors who held scholarships had completed at least some time in the priority terms with the exception of one doctor who did not have any exposure to anaesthetics.

This successful outcome was expected as these two rural hospitals were implementing a two-year program for junior doctors, which had been approved by Queensland Health. It was reported that this program targeted scholarship holders and aimed to ensure they received a generalist experience and broad exposure in their early postgraduate years [129]. Core terms in this program were medicine, surgery and emergency medicine to be undertaken in the first postgraduate year, and obstetrics and gynaecology, paediatrics and anaesthetics in their second postgraduate year. Other terms were elective. With only small

numbers of junior doctors based at these hospitals it was feasible for each of them to undertake terms in these disciplines.

In both of these rural hospitals, however, placements in anaesthetics were only offered for a few weeks. The discipline of anaesthetics was mentioned on a few occasions as the most popular or needed term. Junior doctors saw airway management as an absolute necessity in their training, particularly for rural practice. There were generally no anaesthetic terms available in the first postgraduate year and very limited access in the second postgraduate year. Program facilitators from one hospital reported not being able to offer an adequate level of training due to compromised staffing levels and two other sites were only able to provide very brief time within the discipline.

In Hospital 4, all of the junior doctors had completed a term in emergency medicine, however only three of the doctors had spent time in anaesthetics and obstetrics and gynaecology, and none in paediatrics. In the semi-metropolitan hospital (Hospital 1), of the six doctors who were required to undertake rural practice, five had undertaken a term in emergency medicine, three had completed paediatrics and only two had completed any time in anaesthetics. None of the junior doctors who undertook rural placements had completed any time in obstetrics and gynaecology. The Director of Clinical Training stated that no attempt was made to ensure that those junior doctors expected to undertake rural relieving had completed the recommended terms. The reasons for this were not stated.

Despite variable implementation in the case study hospitals located in the semi-metropolitan and remote areas, the two rural hospitals (Hospitals 2 and 3) were able to implement this strategy as planned. There appeared to be more difficulty in ensuring junior doctors from the larger centre (Hospital 1) had exposure to the appropriate disciplines before going into rural practice. Barriers including a negative organisational culture were experienced in implementing this strategy. These are discussed below.

There has been a recent movement away from the requirement of undertaking particular terms towards the attainment of core competencies [46, 61]. There is evidence in this study to support this move as the opportunity to obtain particular competencies was reportedly not always available in each term. For example, undertaking a term in emergency medicine did not guarantee that junior doctors would have the opportunity to gain all the necessary skills or experiences.

The majority of junior doctors reported they were satisfied with the terms they had undertaken. Some were not comfortable with the levels of supervision and teaching received. The quality of experiences through undertaking terms within the disciplines and self-assessed competency in a range of knowledge and skills relevant to rural practice, are discussed later in this chapter.

9.4.2.2 Strategy 2: Education Activities

The second strategy of the *Supporting Junior Doctors Going Bush* Program aimed to provide educational activities with a focus on management in a rural or remote area. Twenty topics relevant to rural and remote practice were defined. In addition, a framework to integrate content with rural context was presented.

Educational opportunities were available for junior doctors at each of the case study hospitals. Program facilitators from all four hospitals reported that the topics in the program were relevant to practice at their facilities and many were already included in their existing programs. Specific sessions for postgraduate year two doctors were held at only two hospitals. At Hospital 4 sessions were held twice weekly and at Hospital 3 sessions were held less frequently. In this case the Medical Education Officers reported that sessions were held monthly. A program facilitator at Hospital 2 reported that sessions for postgraduate year two doctors had been suspended in the year of this research due to the lack of support for them by the hospital administrators. These data are similar to findings in the literature which identified that approximately only one hour per week is currently spent on formal education activities within the hospital setting [53].

Although each hospital did not provide specific sessions for postgraduate year two doctors, the topics were reportedly accessible through other avenues such as departmental meetings and grand rounds. Overall, the facilitators based in the semi-metropolitan hospital (Hospital 1) were able to provide access to almost all of the topics in-house with the exception of three topics which addressed skills development. Hospital 3, located in a rural area, was able to provide a similar level of access. At Hospital 2 less than a third of the topics were covered in-house and it was reported that the topics were accessible through the rural preparatory program. Only three of the five doctors based at this facility had had the opportunity to participate in the rural preparatory program. Over half of the topics were able to be provided in-house at the remote facility. This research supports the literature which shows that one hour of education per week is feasible.

In this study it was found that program facilitators also faced a number of barriers in delivering educational activities. There was generally no funding, limited support, and inadequate access to resources including simulation centres and skills laboratories. Staffing levels and workforce shortages were issues which impacted upon the ability of junior doctors to be released to participate in activities. Other studies have also found that current education and training for prevocational junior doctors is significantly under-resourced [46, 57, 96]. These barriers are discussed later in the chapter.

The other important aspect in the delivery of the educational activities was the integration of rural context into the content. The DCT at Hospital 4, which was based in a remote location, identified that management options available when working in remote communities was integrated into the activities offered. However, the junior doctors participating in the activities reported that rural / remote context was only included to a small extent. Similarly the MEO at Hospital 3 stated that rural context was incorporated, but the junior doctors noted that inclusions were not common.

Both the program facilitators and the junior doctors at Hospital 2 reported that rural context was not included in any of the sessions held. At Hospital 1, which was located in the semi-metropolitan setting, the MEO reported that rural context was not included in activities. However, a quarter of the junior doctors reported there was some discussion around management in a more remote setting, although this was not common in many presentations.

Despite the emphasis placed on integrating rural context with clinical content in the delivery of education activities, there was minimal attention to this in the trial. There was no reported use of the framework to assist in making the curricula relevant to working in rural or remote settings. This indicates the clinical teaching staff had little awareness of the training and support that was required for junior doctors. In addition, the lack of enthusiasm demonstrated by some of the program facilitators may have resulted in its partial implementation. These issues are discussed further later in the chapter.

Program facilitators from the semi-metropolitan and rural hospitals reported that, in addition to the education activities, the junior doctors were also able to obtain knowledge and skills in the topics by participating in the rural preparatory program run by the Queensland Rural Medical Support Agency (QRMSA). However, this was not a reasonable alternative to providing the topics within the hospital setting as not all junior doctors had the opportunity to attend courses. This issue was identified early in this study and was one reason for the initiation of the *Supporting Junior Doctors Going Bush* Program.

9.4.2.3 Strategy 3: Promoting Course Attendance

Respondents in the first phase of the study identified that procedural and skills courses could assist junior doctors to attain the knowledge and skills necessary for rural practice. Therefore, the third strategy of the program was to promote the attendance of junior doctors at relevant courses. The majority of program facilitators and junior doctors reported that they were aware of upcoming courses, with the exception of two-thirds of the junior doctors at the semi-metropolitan hospital. As a result of this lack of awareness only a few of the junior doctors from this site had participated in any courses.

Over half of the respondents in phase one had not heard of the QRMSA's rural preparatory program, which specifically targeted junior doctors who would be going into rural and remote practice. Promotion of the QRMSA program through the trial of the *Supporting Junior Doctors Going Bush* Program resulted in over a third of the junior doctors in the cohort having participated in it during the intervention year. The program had assisted in raising awareness of this and other relevant courses.

In addition, there were ten other occasions where junior doctors had participated in one of the relevant courses suggested in phase one. The majority of comments relating to these programs, in particular the emergency courses were very positive.

The data collected in the trial suggests that this strategy was able to be implemented. There were barriers which inhibited the complete implementation of this strategy. These are discussed below.

9.4.2.4 Strategy 4: Rural Placement Orientation

The fourth strategy was to provide orientation information for junior doctors required to undertake rural practice. To facilitate the implementation of this strategy, a range of generic information relevant to rural practice and specific information about communities in which posts were located, was provided to the program facilitators by the researcher. This information was provided on a CD-Rom and also available on the project website [134]. Ideally, this information was to be supplemented with additional health service specific details and activities, such as a facility manual and tour upon arrival. These additional activities were not able to be controlled by the researcher.

The DCT at Hospital 1 indicated that orientation information about the town to which they were going was all that had been provided for the six junior doctors who had undertaken a rural placement during the year. Only one doctor was able to confirm that this had happened. Upon arrival at their rural placement

two-thirds of the doctors received a tour of the facility and were informed of equipment and services available.

At Hospital 3, all junior doctors had undertaken rural practice and it was reported that orientation consisted of a briefing by other medical staff who had practised in the relieving community. The junior doctors at Hospital 3 confirmed that this had occurred. A tour of equipment and facilities was received by some relieving doctors and most did receive a handover.

Again at Hospital 4, all of the junior doctors had undertaken rural practice. It was reported that orientation consisted of a briefing by the DCT who had practised in all of the remote communities. The DCT also reported there was a session at the beginning of the year which provided information on the relieving posts within the district. In addition, all relieving posts reportedly had manuals and the junior doctors were advised to contact the doctor they were going to relieve. Two junior doctors confirmed that a session was held at the beginning of the year. Most of the junior doctors received a tour of equipment and facilities and did receive a handover.

This strategy was not implemented at Hospital 2 as none of the junior doctors in their second postgraduate year had been required to undertaken rural practice.

Overall, the orientation strategy was not well implemented at any of the three case study hospitals from which junior doctors had been required to leave to undertake rural practice. There was no evidence that the program facilitators at any of the sites had referred the junior doctors to the orientation information presented on the CDs or the website for the project. Having adequate time for orientation was identified as a barrier to implementing this strategy and is discussed below.

9.4.3 Barriers Affecting Implementation

During the trial of the *Supporting Junior Doctors Going Bush* Program, the program facilitators at the four case study hospitals identified a number of

barriers which impacted upon their ability to implement fully the strategies of the program. Broadly the barriers were: organisational, individual, and program.

9.4.3.1 Organisational Barriers

There were several major barriers at the hospital level that impacted on the implementation of the program. These included staffing levels, workloads, time, and scheduling of activities. Other issues related to the availability of resources and organisational culture. Several barriers impacted upon each other.

In the rural centres, many more difficulties were experienced in relation to staffing, workloads and resources. While senior staffing levels were not an issue in the semi-metropolitan centre, this was a major problem in the rural and remote facilities. Junior doctors reported being required to act in senior positions, to take on more responsibility with which they were not comfortable and to make more decisions. The existing senior staff members were overworked and not able to undertake formal teaching and junior staff members were too busy to participate in education. There were difficulties finding times for education activities which suited all parties. There were staff shortages at the junior level which resulted in the junior doctors being overworked and not able to obtain leave for holidays or course attendance. Findings from another study indicate that increasing the numbers of junior doctors alone may not alleviate such problems, but also needs to be complemented by the provision of additional resources for training [53].

The lack of support from hospital administrators and senior staff had a significant impact on the program facilitators' ability to provide education activities and to facilitate junior doctors' participation in courses. The organisational culture of the hospitals needed to be changed and education recognised 'as a right and not a privilege' for all staff. Study participants questioned the balance between service requirements and training particularly for those at the junior level. Respondents suggested that time should be set aside for education and should be communicated to all staff within the hospital,

with an expectation that it would not be interrupted for service requirements unless it was an absolute emergency. This time would be 'protected' and 'pager free'. Writing minimum requirements for education and training into the award and making it a condition of employment would assist in making education a priority within hospitals. Culture change needed to be driven by administrators and supported by senior staff.

One program facilitator had some innovative ideas to address timing issues but received little support from the hospital administrators. Nominating some days each year where the majority of staff would be freed from service to concentrate on education and training was not seen to be feasible. Another strategy to enable junior staff to participate in education was to provide 'backfill' by general practitioners who wanted to secure clinical attachments at the hospital to refresh their procedural skills. This would benefit both groups involved. With the absence of support from the hospital administrators this program facilitator undertook her own innovative approaches to supporting junior doctors. A bank of Powerpoint presentations was created to enable those junior doctors who were not able to attend education sessions to access the resources. In addition, a video camera had been purchased that enabled clinical procedures to be recorded and copies made available to be viewed at a later time. Although these suggestions do not address the primary workforce issues, they could be replicated in other facilities to increase junior doctors' ability to participate in education.

Access to resources was another barrier that affected the program facilitators' ability to implement the education program at three of the four sites. The teaching staff at the hospitals located in the semi-metropolitan site and one of the rural areas (Hospitals 1 and 2) had only limited access to clinical resources which impacted on their ability to conduct any procedural sessions. Manikins and intraosseous needles were examples of items that were difficult to access. The program facilitator at Hospital 4 located in the remote area, indicated that he had no issues with accessing resources as the hospital was co-located with the local university campus which was well-resourced for clinical training. The other case study hospitals had links with universities and facilitated

student placements. These links could be strengthened to develop similar cooperative arrangements for sharing of clinical teaching resources. It was also claimed that a pool of resources specifically allocated for use in junior doctor training could also be established and shared across hospitals. However, this strategy would be feasible mainly in metropolitan settings rather than in rural and remote environments.

One program facilitator reported that most of the junior doctors at his/her facility did not want to work very hard in their education sessions and were more interested in didactic presentations. Much of the feedback from junior doctors indicated they wanted more interactive, practical sessions. The emergency department tutorials at this facility were reportedly more practical and the most popular.

Staff shortages, timing, workloads and organisational culture also hindered participation in procedural and skills courses. Making attendance at courses a condition of employment would oblige hospital administrators to support the junior doctors. If appropriate training and clinical experiences to prepare for rural and remote practice were not able to be provided within the hospital setting for junior doctors, then attendance at courses could assist in filling any gaps in skills and knowledge.

Hospital administrators need to support alternative approaches as they are responsible for ensuring junior doctors, particularly those holding scholarships, are prepared for their current and future posts. One respondent suggested that hospitals also needed to be supported in this endeavour by the Office of Rural Health, of the State Health Department, which was responsible for administering the rural scholarship scheme.

The junior doctors also wanted the logistical aspects of attending courses to be organised at state level. A coordinator could ensure equitable allocation of funding and administer it directly to cover costs of travel, accommodation and registration fees.

9.4.3.2 Individual Barriers

Some of the barriers experienced in implementing the strategies of the *Supporting Junior Doctors Going Bush* Program related to individuals and were therefore difficult to control. In relation to the education strategy, motivation and confidence impacted upon the junior doctors' abilities to participate in activities. While food was used as an incentive to attract junior doctors to attend, it reportedly did not always work. Some preferred to have a break and have their own lunch. There were also issues surrounding junior doctors having the confidence to attend activities if they were not openly supported by senior staff.

Education needed to be a part of the organisational culture of hospitals and be seen as a right not a privilege. If education was made a priority within hospitals, junior doctors might be more enabled to participate. Writing minimum education and training requirements into employment contracts would ensure clarity of rights. The provision of protected time would make it easier for both senior and junior staff to commit to educational activities.

The financial costs of undertaking courses were high, particularly for those based in rural and remote areas. In addition to registration fees, junior doctors were quite often required to pay for travel and accommodation expenses. Suggestions were made that funding should be provided to assist junior doctors to participate in skills courses. This was important especially where junior doctors were not receiving the opportunities to learn the necessary skills and procedures within the hospital setting.

There was much administrative 'red tape' in hospitals and confusion as to whether courses should be supported by hospital administrators through the provision of funding and paid leave. While some funding was allocated to rural scholarship holders, there were questions as to whether the district health services were responsible for providing this, or whether it should come from the Office of Rural Health.

There were numerous difficulties in obtaining approved leave, particularly in the rural centres where the workforce was stretched. Many junior doctors believed that they should be entitled to 'paid conference leave' or similar. Again, clarifying entitlements in the 'award conditions of employment' would assist in achieving hospital support and ensuring that all junior doctors had equal opportunity to participate.

9.4.3.3 Program Barriers

There were several barriers that related to the implementation of the program in general. At the mid-point of this project, one program facilitator reported being unsure of some of the program requirements and thus did not engage fully with the program. He/she was intending to leave his/her position and had resigned effective from the conclusion of the year. Another respondent suggested a user manual for the program be developed to educate the program facilitators undertaking onsite delivery. The 'Guidelines for On-Site Delivery' were developed for this purpose. There was also a need for training for registrars and presenters involved in providing education to ensure they understood the objectives of the program including the requirement to include rural context and adult learning principles.

The original plan for delivery of the *Supporting Junior Doctors Going Bush* Program was through two options; on-site delivery and self-directed learning via the internet. One program facilitator stated that delivery over the internet was a better mode than delivery within the hospital setting as information could be updated easily and accessed from various locations. There were several issues surrounding the accessibility of the program. Two-thirds of the junior doctors indicated they were aware of the program but only a few had initiated self-directed learning and made an effort to access the electronic resources. This was somewhat surprising considering over half of the respondents had been required to undertake country relieving or rural practice during the year.

The junior doctors were asked to reflect upon any barriers that hindered their ability to access the electronic resources. The barriers identified were time, motivation and not knowing how to access the information. The researcher

had undertaken a direct marketing approach by mailing promotional material (bookmarks and flyers) straight to the junior doctors. In addition, posters were provided to the program facilitators to display in their hospitals. The marketing strategy included word of mouth and a personal approach by the local program facilitators to support the implementation of the program.

This strategy was only partly successful. While the participants were aware of the program through the promotional material mailed directly to them, this was not reinforced by the local program facilitators. The DCTs and MEOs did not actively promote the program resources and the potential benefits. The lack of follow-up and reminders resulted in limited usage of the electronic resources. With three of the seven program facilitators submitting their resignations toward the end of the trial year, it is possible that their levels of motivation and enthusiasm for implementing the program were low. This assumption was not confirmed in the interviews.

There were some general issues which affected the full implementation of the program. Limited patient presentations, unexpected events and communication from external sources were the primary issues. It was not possible to control patient presentations. Where junior doctors did not have appropriate learning opportunities due to limited patient presentations, alternative methods of learning were required. Suggested strategies included ongoing education and participation in skills and procedural courses.

Unexpected events generally impacted upon the presenters' and junior doctors' ability to participate in educational activities. Although the timing of clinical emergencies cannot be predicted, the undertaking of education in protected time would assist in ensuring doctors were able to attend. This would ensure that staff would be available to cover for junior doctors while they were absent. In addition, full staffing complements within hospitals would allow doctors to balance their roles of being responsible for service delivery and undertaking teaching or learning.

Significant notice was required to obtain leave and plan participation in courses. Course organisers reportedly did not always advertise in a timely manner and the majority of courses were held in metropolitan centres. While local attendees only need to cover registration costs, junior doctors from rural centres had to pay for travel and accommodation, in addition to course registration fees.

There were suggestions made by both the program facilitators and the junior doctors that course providers should consider holding fewer courses to minimise some being cancelled, and to hold some courses in rural centres. The latter would have two main benefits. First, it would shift the cost of attending and make it fairer for rural participants. Second, it would assist in informing the expectations of doctors from metropolitan centres as to what the environment was like in rural and remote communities.

The *Supporting Junior Doctors Going Bush* Program was able to be implemented to a reasonable degree in semi-metropolitan, rural and remote settings. In all three areas, time in the priority disciplines was available with the exception of paediatrics at the remote centre. All hospitals offered a range of different education opportunities for junior doctors, and could cover most topics within a program focusing on attainment of core rural knowledge and skills. In Hospital 1, the semi-metropolitan site, there was not as much success in promoting and encouraging attendance at courses. Orientation to rural practice was not done well at any of the three hospitals whose doctors went into rural practice (Hospitals 1, 3 and 4).

9.4.4 Impact of the Program

It was important to measure any impacts that may have resulted from participation in the *Supporting Junior Doctors Going Bush* Program. Initially, the impact of experiences received through the terms was assessed, to measure how the junior doctors perceived their preparation for practice in the hospital setting. The potential impacts of the program for perceived capability for practice in a rural or remote setting; preparedness for practice in a range of clinical environments; preparedness for living in different settings; changes in

competency in managing a range of common rural presentations and decisions regarding vocational training and intentions for future practice were also measured.

Qualitative data were collected from the junior doctors and program facilitators. These data were triangulated to inform the outcomes presented here. As discussed above, there were barriers which impacted upon the ability of the program facilitators to implement the program strategies and also impeded the junior doctors' ability to participate fully in the program. These need to be considered when interpreting these results.

9.4.4.1 Preparedness for Practice in a Hospital Setting

All of the program facilitators stated that the junior doctors based at their sites were prepared for practice within the hospital setting. All junior doctors reported feeling well prepared except for two junior doctors from Hospital 2. The program facilitators at this hospital stated that the doctors were competent but not confident. This may explain the comments made by the junior doctors.

Some of the junior doctors at the semi-metropolitan site (Hospital 1) reported they were prepared for practice in the medical disciplines in which they had gained experience. Some of these were specialist units. They did not always receive a generalist experience and the doctors lacked confidence in working in other areas within the hospital setting. One respondent reported that he/she was better prepared because of the experiences received in a rural centre in his/her first postgraduate year. There was also evidence in the literature that the experiences gained by students in rural environments were comparable, if not favourable to those received in urban settings in terms of experiencing general medicine, accessing patients and opportunities for providing continuing care [38].

Most of the junior doctors indicated they had experienced a broad range of presenting illnesses and conditions. One program facilitator at a rural hospital disagreed with this, stating that at some times presentations were limited. Junior doctors at Hospital 1 reported satisfaction with the levels of 'hands on'

management and responsibility for patients. The majority of those at the rural and remote centres were not comfortable with the levels of responsibility they were given and the requirement to work in more senior positions. Barriers including staffing shortages impacted upon support and supervision that was available and, consequently, opportunities to learn.

9.4.4.2 Preparedness for Practice in a Remote Setting

All of the program facilitators reported that the junior doctors based at their hospitals were prepared for practice in a rural or remote setting. The DCT at the remote hospital (Hospital 4) stated that all of the doctors based there were better prepared than any others in the country due to the time they had spent in this hospital and the exposure they had received. All of these junior doctors had been required to practise in remote communities during the time of this study.

It was reported that those based at the two rural facilities had received good generalist experiences. These experiences were the result of participating in the two-year program approved by the State Health Department to assist rural scholarship holders with their rural training needs [129]. The required terms within the second year of this program were in line with priority disciplines within strategy one of the *Supporting Junior Doctors Going Bush* Program.

A quarter of those junior doctors from Hospital 1 were not confident in the disciplines to which they had not been exposed. It was at this site that the DCT stated that no effort had been made to ensure those junior doctors going into rural practice had completed the terms in the priority disciplines. The reasons for this were not explored. Overall, the junior doctors based at the semi-metropolitan hospital were the least confident for rural practice. Despite the statement by the DCT that those based at the semi-metropolitan hospital were receiving generalist experiences, most of the junior doctors had not completed terms in all of the priority disciplines. Just over half of the group had been required to undertake rural practice. Their narrow exposure impacted negatively on their preparation for future rural practice.

9.4.4.3 Success of Strategies

This research found that the most effective strategy for preparation of junior doctors going into rural and remote practice was exposure to a broad range of generalist clinical experiences. Although some junior doctors received variable experiences, this practical experience through everyday work undertaken during terms was identified as the best way to learn and had made the biggest impact on the junior doctors' development.

Several junior doctors noted that terms in emergency medicine had contributed the most to rural preparation. This outcome supported the findings in phase one of the study which stated that skills in this area were paramount and would assist in keeping people alive in rural areas until further help arrived. Experiences received when working at night, and from the increased levels of independence in managing patients and making decisions, had also assisted in preparing the junior doctors for rural practice where there would be limited support staff available.

Program facilitators and junior doctors from all four sites reported that the learning experiences within the terms were not always ideal. These variable experiences were often due to limited senior staff available for supervision and teaching. One respondent also identified that on some occasions junior doctors did not receive adequate clinical experiences through their terms, due to variations in the type of conditions and illnesses with which patients presented.

Where appropriate clinical experiences were not being received through the completion of terms, respondents suggested that alternative models of training needed to be investigated. For example, they argued for supplementing hospital-based experiences with participation in intensive courses or a placement at another hospital where the skills and knowledge required could be learned.

Skills and procedural courses, in particular those addressing emergency medicine, were highly regarded by the majority of respondents. Participation in skills and procedural courses complemented clinical practice, facilitated the

participants gaining hands on experience and provided the opportunity to practise procedural skills. Courses were perceived to also be important in developing confidence. Participation in courses was seen as the second most successful strategy in preparation for rural practice.

The QRMSA Rural Preparatory Programs were developed as a project funded by Queensland Health, and aimed to provide Resident Medical Officers with an opportunity to reaffirm their competence, capacity and confidence to manage acute emergency situations and the general practice aspects of their rural placements [86]. Just under a third of the junior doctors in this study had attended a program during the trial year.

There were a range of responses regarding the quality of this course. While some reported that the course was excellent, others claimed that it was too theoretical and detailed. It was also indicated that it was only a refresher and that confidence was gained only after the procedures had been done several times in practice. Although it was reported that one workshop had been held in a regional location during the year, with limited numbers able to be accepted, it was evident that many junior doctors, particularly those located in rural and remote hospitals, were missing an opportunity to participate. None of the junior doctors from the remote hospital had attended the rural program.

Since the completion of this study, funding for this course, which was provided by the State Health Department, has been discontinued [135]. The withdrawal of funding puts greater responsibility on the teaching hospitals to provide such training for its junior doctors. This also puts much more responsibility on administrators at the Office of Rural Health to be supporting hospitals to fill the training gap for its rural scholarship holders.

The education programs being implemented at all four of the case study sites reportedly had little or no impact on the junior doctors' preparation for practice in rural communities. The programs were not seen as valuable or contributing to rural preparation. The junior doctors reported there was little rural or remote focus in the delivery of activities. Those at the rural hospitals stated that

educational activities were held irregularly. One respondent stated there was a need for more practical skills and a focus on presentations common in general practice. These outcomes were similar to those found in the study by Iredell [51].

As junior doctors who were required to undertake country relieving and rural terms were not always based in rural and remote locations, it was necessary to assist the educators at their base hospitals to integrate rural context with clinical content in education activities. To facilitate the education topics being presented with a focus on issues pertinent to rural and remote practice, the Rural Practice Curriculum for Junior Doctors: A Framework, was presented for use [90]. However, as discussed above, despite these resources being provided there was reportedly little or no inclusion of rural context. Organisational culture and enthusiasm for executing the program impacted upon the feasibility of full implementation of this strategy. Therefore, it was reasonable to expect that little benefit through the education programs would be received by the junior doctors.

The program facilitators were asked to provide orientation information only to those junior doctors who were required to undertake country relieving or rural terms. Despite the provision of much orientation material as resources for the program, the majority of junior doctors who had been sent into rural practice indicated they received very little orientation information. None of the program facilitators reported utilising the electronic information provided through the project, or referring the junior doctors to it.

Only two of the junior doctors who had undertaken rural or remote practice stated they would have liked further orientation material before they had left. This indicates that orientation, or the absence of it, did not make a significant contribution to the junior doctors' perceived preparedness for rural or remote practice. The majority of information the junior doctors did suggest be included in a rural program, was already accessible on the website. There were issues regarding awareness of, or access to, the electronic resources. Better promotion of the program and its resources was required.

This study has provided evidence to support the approach of ensuring junior doctors are exposed to extended generalist clinical experiences prior to being sent to, or placed in, rural or remote communities. Preferably, experience should be over a minimum of two years and in a range of generalist disciplines. The trial of the four strategies found that clinical experience was the key to preparedness. This study supports the concept of the Rural and Remote Area Placement Program which emphasises the importance of well-supervised terms in rural facilities [24]. Where there were gaps in clinical experience, skills and procedural courses were identified as the next best method to address these.

The education and orientation strategies were not able to be fully implemented. While the junior doctors stated they did not need much additional orientation, the education strategy might have contributed more to preparedness if it had been implemented fully and the application of rural context was applied consistently. Further research would be required to see if this proposition was likely to be successful.

9.4.4.4 Changes in Competency

An aim of the *Supporting Junior Doctors Going Bush* Program was to facilitate junior doctors attaining competencies in a range of common rural presentations. Data were collected from the junior doctors to measure any changes in perceived competency which may have resulted from experiences received during the program trial.

The junior doctors perceived that their competency had improved significantly over the year in the areas of managing head injuries and trauma (where $p < 0.05$, Wilcoxon matched pairs, Exact Monte Carlo test). All of the postgraduate year two doctors had spent time undertaking terms in the emergency department. As head injuries and trauma are common emergency presentations, it is likely that the junior doctors' competence in managing these would have improved considering their work experiences over the year. This supports the outcome that clinical experiences are paramount in rural preparation.

9.4.4.5 Preparedness for Practice in Different Clinical Environments

Another measure of impact was to assess how well prepared the junior doctors perceived they were for practice in different clinical environments. Most junior doctors had undertaken the majority of their training in metropolitan hospitals where their university was based. Many had also reported undertaking a rural placement during their studies. The responses at the beginning of the first postgraduate year were not surprising with the junior doctors indicating they were well prepared to practise in a metropolitan hospital. The respondents indicated that they were not very well prepared for rural general practice or for working as solo doctors in isolated practices. This was to be expected as the doctors had spent little or no time in these environments. Data collected in the initial questionnaire found that most rural placements undertaken during university were in large or small rural towns.

During their intern year all junior doctors were based at teaching hospitals which were well supported learning environments. At the conclusion of this year, there were no significant changes to ratings recorded. At the conclusion of the second postgraduate year, the group perceived that they remained well prepared to practise in metropolitan settings and rural hospitals. Perceived preparedness for practice in solo-doctor communities remained low. There were no significant changes over the year.

9.4.4.6 Preparedness for Living in Different Settings

The junior doctors reported that they were well prepared for living in metropolitan areas and not very well prepared for living in isolated areas. There was little change in the median values over the first or second postgraduate year. Experiences received in the intern year, or the year in which the *Supporting Junior Doctors Going Bush* Program was delivered, did not appear to have had any influence on preparation to live in different environments.

9.4.4.7 Decisions Regarding Vocational Training

Despite being at early stages in their professional lives, many of the junior doctors were already making decisions about choices for vocational training and long term career paths. Prior to internship fifteen respondents indicated that they intended to pursue vocational training (78.9%). By the end of their second postgraduate year, eleven had joined a vocational program (55%) and a further seven intended to enroll (35%).

In the initial data collection prior to the intern year the most popular specialty was general practice with three respondents indicating it was their preferred career path. This figure had doubled by the end of the second postgraduate year with six respondents indicating general practice was their preferred training program. The popularity of general practice as a career path was consistent with the cohort demographics. Most of the cohort were rural scholarship holders and potentially already attracted to rural and remote practice. It was expected that they might want to train in general practice, given the generalist nature of rural practice.

9.4.4.8 Rural Scholarship Holders' Intentions

An aim of the rural scholarship scheme was to encourage rural careers. Just over half of the cohort was potentially attracted to rural practice as they had agreed to the conditions of being bonded to rural practice through holding a scholarship. It was expected that this might influence the data collected on intentions for future rural practice. These participants had already made a commitment to practise in rural areas to pay back their scholarships.

However, some of the scholarship holders expressed concern in relation to the communities in which they might be placed in the future, considering their experiences in posts in rural and remote communities. The majority of junior doctors holding a scholarship who were involved in the project had been required to undertake country relieving or rural terms.

It is significant that all of the junior doctors holding scholarships who had been required to undertake rural practice indicated they were not satisfied with the

scheme. Three were dissatisfied to the extent that one had already bought out of the scheme, another indicated that he/she would be buying out at the end of the year, and a further one did not think they would complete the bonded time.

Issues with the scheme included the lack of transparency in the ballot process, lack of communication with scholarship administrators, no monitoring of the quality of placements or recipients' progress, limited support for rural focused education and training opportunities, and no collaboration to support junior doctors being placed in accredited posts toward the pursuit of vocational training. Only four of the doctors holding scholarships identified benefits of the scheme. Three were based at Hospital 2 where none of the junior doctors had been required to undertake rural or remote practice. The main benefit reported was the provision of financial assistance during medical school.

Several suggestions were made by the scholarship recipients to overcome the issues listed above. Suggestions included more involvement from administrators; ensuring placements were suitable; provision of adequate levels of supervision, support and reasonable workloads; and support to attend training courses. Other suggestions were to increase transparency in placement allocation processes and forward planning, and monitoring progress to ensure gradual progression in skills development. In the absence of any structured support for rural scholarship holders, junior doctors needed to take more responsibility for their own learning to prepare for rural practice in whatever location the scholarship scheme administrators sent them.

Scholarship administrators need to take the suggestions made by junior doctors into consideration to improve the scheme and minimise the possibility that junior doctors will want to buy out. The extent to which decisions were made to discontinue the scholarship agreement based on experiences received in their early postgraduate years needs to be further investigated. As discussed earlier in this thesis, it has been shown that positive rural experiences at the undergraduate level will increase the likelihood of rural practice in the future [35-39]. However, there was evidence that negative experiences at the early

postgraduate level were an issue that could be impacting adversely upon rural recruitment. Further research needs to be undertaken to explore these issues.

9.4.4.9 Intentions for Future Practice

Over half of the junior doctors had undertaken rural practice including the majority of the scholarship holders. The junior doctors reported mixed feelings about having to undertake rural practice and were generally quite anxious before leaving. Upon returning they felt much more confident and competent in their abilities. The disclaimer to their comment was that this was generally because nothing had gone wrong. Difficulties experienced included no supervision, limited access to clinical resources, heavy workloads and no relief for being on-call.

At the beginning of their first postgraduate year the junior doctors indicated they were most likely, than at other career points, to practise in a rural location in their early postgraduate (median = 2.0, n=15) and registrar years (median = 2.5, n=16). They were less likely to practise in rural locations in the future for short or long periods or to undertake locums. An explanation for these ratings might be that because the majority of the cohort held rural scholarships, they were aware that they were bonded to rural practice for up to 5 years after graduation [18].

Over the first postgraduate year there were two significant changes (where $p < 0.05$, Wilcoxon matched pairs, Exact Monte Carlo test) in decisions regarding future practice locations. The junior doctors indicated they were less likely, than at other career points, to spend time in rural areas in the future for up to five years after vocational training ($p < 0.014$, n=11) and also as registrars ($p < 0.039$, n=10). In the registrar and early years as a specialist, junior doctors perceived that there were limited opportunities in rural areas where vocational training and supervised development early in their careers could be undertaken. This was an issue noted by one scholarship holder who stated that limited assistance was received when trying to coordinate vocational training with scholarship requirements. Such issues might be detrimental to the aims of the scholarship scheme. Limiting options for vocational training because they do

not fit with scholarship requirements, may impact negatively on the numbers of students taking up scholarships, or increase the numbers of junior doctors buying out of the scheme.

There were no significant changes over the second postgraduate year. At the conclusion of the year, the junior doctors rated their intentions for practice in rural locations as being more likely in the prevocational years and not likely during the registrar years. Again this fits with the requirements of the scholarship scheme.

9.4.5 Is A Rurally Focused Preparation Program Really Necessary?

This study found that the most effective strategy for preparation for rural practice was a broad clinical experience and exposure to managing a range of conditions and illnesses, in particular emergency presentations. Undertaking terms or spending some time in relevant disciplines could facilitate this learning. The next most effective strategy for preparation was participation in intensive procedural and skills courses. Through courses, participants were able to learn or practise skills that were not experienced regularly in their daily work. There was limited use and reported need for orientation material, and little impact was gleaned from educational activities.

Term allocation and participation in courses were strategies over which junior doctors had some control and it was arguable as to whether a separate rural focused preparation program was really needed.

When questioned, the majority of both program facilitators and the junior doctors supported the concept of a rural preparatory program. The respondents reported a number of benefits of having a support program for early postgraduate doctors going into rural and remote practice. The benefits of a program were that it would assist in informing expectations of rural communities, facilitate easy access to electronic resources, assist in organisational culture change, decrease professional and personal isolation, ensure appropriate skills were pursued, and increase confidence. One respondent stated that a rural program would fill a gap not currently being

addressed by the scholarship scheme administrators nor the State Health Department.

The suggested components of a rural preparatory program were the designation of a support person for advice and clinical decision-making, provision of pastoral care, moral support, debriefing and networking, facilitation of skill development and exposure to clinical practice. Other content identified by the junior doctors that they perceived would be useful included details of the clinical services available in the relieving locations, the core skills required for rural practice, availability of clinical information and courses on-line, and information on the community including social activities.

The *Supporting Junior Doctors Going Bush* Program included most of this information which was available to participants on CDs provided to each facility and on the project website. In addition, the strategies encouraged skills development and exposure to managing a range of clinical conditions and illnesses. A major weakness of the program implementation is evident. Better promotion of the program, its strategies and resources was needed. Much of the suggested information and resources were available but the participants were not aware of its existence. While the program facilitators were well aware of the program materials, little was done to pass this information on, or to encourage the junior doctors to access these. As mentioned above, the levels of enthusiasm for implementing the program may have been low as three of the program facilitators submitted their resignation during the time of the trial.

Just over two-thirds of the junior doctors at the case study hospitals were aware of the program. Only a few had accessed any of the electronic resources. Time, motivation and knowing how to access the resources were barriers to self-directed learning. Again, this finding is evidence of the need for better promotion and marketing.

9.5 A MODEL FOR EFFECTIVE PREPARATION

Based on the outcomes from this research it is possible to propose a model for effective preparation of junior doctors for rural practice. Clinical experience is

the key to preparedness for rural practice. It needs to be facilitated for junior doctors in a way that ensures a valuable learning experience. A minimum of two years in supervised practice would allow junior doctors to gain this experience, and develop skills toward core rural competencies before being subjected to potentially unsupported practice in a rural or remote environment. Rotations in the second postgraduate year in paediatrics, anaesthetics, obstetrics and gynaecology, and emergency medicine would complement experiences received during the intern year and assist in developing these skills.

As outlined above there were a number of benefits to having a support program. A rural preparatory program could supplement this clinical experience by providing a structured and supportive approach that would allow junior doctors to gradually increase their competence and confidence. Programs should be flexible to include other avenues of skills development especially where exposure is not received in practice. Intensive skill and procedural courses and education with a rural emphasis may also contribute. Given the barriers to formal teaching identified in this study, alternative methods of education delivery should be explored further.

Another key component in the program would be the designation a support person for advice and clinical decision-making, provision of pastoral care, moral support, debriefing and networking. The model should also facilitate the availability of specific orientation information as discussed above.

CHAPTER 10: CONCLUSION

The research question investigated in this study was: what strategies will prepare early postgraduate doctors effectively for practice in rural and remote communities? Phase one explored the current issues and confirmed that, despite strong opposition from respondents, junior doctors were still required to undertake rural and remote practice in their second postgraduate year, including in solo-doctor communities.

The *Supporting Junior Doctors Going Bush* Program was developed in phase two to assist junior doctors prepare for such experiences and other rural practice in the future. The program aimed to assist junior doctors in their preparation and minimise some of the issues and difficulties faced. The objectives were to facilitate the attainment of core rural competencies, provide orientation to assist preparation, provide ongoing education and training activities, encourage attendance at appropriate courses, and enhance adaptation to rural and remote lifestyles and communities.

In phase three the program was trialed and evaluated. Evaluative data were collected in relation to the feasibility of implementing the program and also to measure the program impacts. The degree to which the program was able to be implemented was an important outcome. This study found that teaching hospitals had access to different levels of support, resources and infrastructure which impacted significantly upon the ability of staff to deliver programs. The facilitators of the program in the four case study hospitals experienced barriers which impacted on their ability to implement the program. The predominant barriers were organisational issues including staffing levels, heavy workloads, inadequate resources and a negative educational culture. Some innovative solutions were identified that would assist in improving the feasibility of implementing a hospital-based rural preparatory program.

The program facilitators claimed that the junior doctors were receiving good experiences at the case study hospitals and considered that at the end of their

second postgraduate year, the junior doctors were prepared for practice in supported hospital settings and also for practice in a solo-doctor remote community, if this were required. The program facilitators reported the terms being undertaken by junior doctors provided them with a good basis for clinical practice. Responses from the junior doctors described similar outcomes. However, experiences along the way were variable. Doctors received different levels of support and supervision within the case study hospitals which ranged from the extremes of being well supported to having no support. Preparedness resulted from having good supervision and teaching in a well supported learning environment. Preparedness also resulted from the doctors having to direct their own learning when in less supported positions. Those in the rural and remote facilities reported staffing issues, particularly shortages, which impacted negatively on support and supervision.

A generalist clinical experience prior to going into rural practice was found to be the most effective strategy to prepare junior doctors. Clinical experiences received everyday through term rotations had contributed the most to junior doctors' preparation for practice in both the hospital and rural and remote community settings. Intensive skills and procedural courses were also reported to contribute to preparation. These courses were able to address the gaps and facilitate skill development where opportunities were not received in actual practice. Education programs and orientation had very little impact.

Significant changes identified through quantitative measures indicated that, at completion of their first postgraduate year, junior doctors were less likely, than at other career points, to practise in rural areas during their registrar years or early careers after vocational training. The availability of vocationally accredited rural training posts impacted on this outcome. Other significant findings were that junior doctors perceived themselves to be more competent in the management of head injuries and trauma at the conclusion of their second postgraduate year.

Respondents in this study strongly supported the need for a rural preparatory program. The benefits of such a program being to inform expectations, assist

in organisational culture change, decrease professional and personal isolation, ensure appropriate skills were pursued and increase confidence.

The outcomes of this study suggest that teaching hospitals need to facilitate a broad range of clinical experiences for those doctors who will be practising in rural and remote areas. Such experiences could be facilitated through undertaking terms in relevant disciplines, as was illustrated in the set program offered at the rural centres. Administrators within other teaching hospitals need to ensure that relevant term allocations are provided.

Where inadequate clinical learning experiences were being received, alternative strategies were required to fill the gaps in knowledge and skills, whether it is via participation in intensive skills courses or through internally provided programs. While the education strategy had little impact on the junior doctors, it was also not able to be fully implemented. If the strategy was able to be implemented as planned, it may have contributed more to the junior doctors' preparation. The State Health Department needs to ensure education and training is made a priority within hospitals, and sufficient funding and resources are provided to support activities.

With the exception of discussions surrounding the recently released 'Australian Curriculum Framework for Junior Doctors' [66], there was minimal literature addressing the needs of early postgraduate doctors, particularly those going into rural and remote practice. The outcomes of this research contribute to the body of work addressing junior doctor education and training, and recruitment and retention of the rural workforce. While numerous initiatives have been instigated to encourage rural careers, an important factor that has been overlooked is readiness of the workforce. Sending doctors into rural practice when they are not ready may do more harm than good. In addition, negative experiences may impact adversely on future recruitment and retention.

The *Supporting Junior Doctors Going Bush* Program raised the profile of rural practice and was seen as a tool that could assist with changing the culture within hospitals. The program provided direction for hospital educators to

assist their junior doctors with relevant preparatory activities. Making clinical teachers more aware of the needs of junior doctors was needed to encourage more relevant teaching and support to be provided. Training was necessary for all clinical staff responsible for teaching junior doctors to ensure rural context was included in the delivery.

The strategies within the program were implemented to a reasonable degree. There was evidence that the junior doctors were prepared as a result of the clinical experience they received during term rotations. The other strategies of the program may have had a greater impact on the junior doctors had each of the case study hospitals had appropriate levels of staffing and resources, and all strategies were able to be implemented fully. Further research is required to explore this proposition.

Any future rural programs need to be better promoted and marketed. In addition, peer reviewed educational resources that were appropriate for junior doctors and focused on rural practice need to be made available. Facilitating online delivery would enable easy access from teaching facilities and rural posts. Onsite delivery in hospitals would need to be supported to facilitate the learning of skills and procedures particularly in emergency areas.

The *Supporting Junior Doctors Going Bush* Program did not appear to have any significant influence on stated future rural recruitment. Further research following the same cohort later in their careers would assist in determining whether their intentions for rural practice were followed through and identify factors that influenced any changes. This information may be important for rural workforce planners.

The study did find however, that rural experiences received by junior doctors early in their careers were not necessarily positive and did influence their decisions toward future rural practice. This outcome was important for those administering the scholarship scheme as three respondents in this study were not planning to continue with the scheme due to the rural experiences they had received in their second postgraduate year. Discontinuing the scholarship

scheme obligations may impact on retaining these medical practitioners' interest in rural careers. Research with rural practitioners, including those who held a rural scholarship, would encourage reflection to confirm what aspects of their experiences or training were in fact the best preparation for shorter term country relieving, longer term practice and interest in rural practice.

The *Supporting Junior Doctors Going Bush* Program did assist in closing the gap in rural training. It raised the profile of rural practice and provided direction for hospital educators to assist their junior doctors with relevant preparatory activities. Clinical experience was identified as the most effective strategy to prepare junior doctors for rural practice. Exposure in appropriate disciplines enabled knowledge, skills and confidence for independent practice to be developed.

A number of barriers impacted upon implementation. However, in general the program was able to be implemented to a reasonable degree in semi-metropolitan, rural and remote settings. Additional resources are required to further develop the program and improve promotion and accessibility. A model was outlined that could assist future junior doctors in their preparation. The State Health Department have the responsibility of ensuring that rural preparation is made a priority within hospitals and sufficient funding and resources are provided.

APPENDICES

APPENDIX A. PROJECT INFORMATION SHEET

FLINDERS UNIVERSITY
ADELAIDE • AUSTRALIA

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Project Information Sheet

Barriers to undertaking safe remote practice in early postgraduate years, are the lack of preparation, and limited support, education and supervision provided. It is proposed that the development and implementation of a curriculum that addresses priorities and issues for remote practice may result in better prepared junior doctors, both clinically and personally, practising in rural and remote communities. This may result in increased preparedness and confidence, more positive experiences and encouragement to consider undertaking locums or spend longer terms in rural communities.

This project will investigate whether the implementation of a new curriculum, for postgraduate year 2 medical officers, influences their preparedness for, and intention to practise in, rural and remote communities. To measure any changes as a result of the curriculum, baseline data are required. This questionnaire constitutes phase 1 of the project and aims to collect baseline data to ascertain your perceived preparedness for practice, and future intentions for vocational training and practice location. The questionnaire should take no longer than 10 minutes to complete. A follow-up questionnaire will be distributed at the conclusion of intern year to identify any changes, and influential factors.

To allow you to remain anonymous, a coding system is being used. This will enable any changes to be measured without you being identified. All data will be kept confidential and individuals will not be identified in reporting. Please return completed questionnaires in the 'Reply Paid' envelope by 31 January 2003. If you have any queries about this project please contact me on 07 4745 4500 or email: deborah.smith@jcu.edu.au

Deb Smith
PhD Candidate

About the Researcher

Deb Smith is a student in the School of Medicine at Flinders University. She is currently undertaking research towards a Doctor of Philosophy. This research will lead to the production of a thesis and / or other publications on "curriculum development for junior doctors in rural practice". She would be most grateful if you would volunteer to spare the time to assist in this project, by completing the following questionnaire which addresses certain aspects of this topic.

Any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. You are, of course, entirely free to discontinue your participation at any time or to decline to answer particular questions. Any queries you may have concerning this project should be directed to the researcher, or me at the address given above or by email: David.Prideaux@flinders.edu.au This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee. The Secretary of this Committee can be contacted on 08 8201 3513, fax 08 8201 3756, email: Lesley.Wyndram@flinders.edu.au

Thank you for your attention and assistance.

Yours sincerely,

Professor David Prideaux
Head, Office of Education
School of Medicine

Location: R«ID», Sturt Road, Bedford Park, South Australia

APPENDIX B. INTERVIEW PROFORMA (PHASE 1)

INTERVIEW PROFORMA / QUESTIONNAIRE Code: _____

Date: ___/___/03

As outlined in my previous communication I would like to gain your opinions about how to better prepare and support junior doctors who are required to practice in rural or remote communities. As you already know, Queensland Health Scholarship Holders are bonded to undertake rural service from their second postgraduate year and other junior doctors undertake rural terms or are obliged to do relieving.

Support has been gained for the development and trial of an orientation and education program with an emphasis on rural practice for postgraduate year 2 doctors. The aims of this program are:

- to facilitate junior doctors developing skills in diagnosing and managing common illnesses and conditions seen in rural and remote practice; and
- to assist junior doctors to be prepared to practice, both clinically and personally, in a rural or remote community.

I am currently undertaking research to inform and evaluate these activities. The purpose of this interview is to facilitate your input into the content and format of the program. The information you provide may also be used in reports and publications, however will be de-identified allowing individuals to remain anonymous. Participation is voluntary and you may withdraw at any time. Would you object if I taped this interview?

Before I start I would like to clarify the terminology I am using – because the program will be targeting postgraduate year 2 doctors, that is the group I am referring to when I use the term junior doctors throughout the survey.

Firstly, a few background questions, can you please confirm your current position:

❑ MEO	❑ Rural or remote practitioner
❑ DCT	❑ Academic rural professional
❑ RMO with rural experience	❑ Medical Administrator

MEO	DCT	RMO	R&R	ACAD	ADMIN		
X	X	X	X	X	X	How long have you been in this position?	
		X				Have you received any rural health scholarships? Please specify?	
	X	X	X	X	X (MDs)	Have you practised medicine in a rural or remote community?	
	X	X	X	X	X (MDs)	In which communities you have worked? For how long?	
		X				Has this rural experience been positive or negative? Please comment.	
X	X		X	X	X	What is your involvement (either directly or indirectly) with junior doctors?	
X	X	X				**Requirements** In which rural and remote towns within your district are junior doctors sometimes required to work?	

1

x Can you outline the rural service requirements for junior doctors holding a QH rural scholarship?

Rural Practice
I am interested in your perceptions of the environment in rural and remote practice.

Can you identify the issues or difficulties you think are faced by junior doctors whilst they are undertaking rural and remote practice? These can be professional or personal. *PROMPTS: What about isolation, support, supervision, preparation, education?*

What do you think is the biggest problem?

What specific skills/competencies do you think are ESSENTIAL that a junior doctor possess before going into rural and remote practice?

Are there any specific conditions or illnesses that are commonly seen in rural or remote practice particularly in Northern and Western Queensland*?*

I would now like to focus more specifically on developing a program considering the information you have just detailed. Based on the Postgraduate Medical Education Foundations accreditation guidelines, hospital activities generally include orientation and formal education sessions.

Orientation Component
Focusing on orientation, what topics should be included?

Are there any other activities or specific information, relevant to clinical issues / rural and remote communities, that should be included?

At what point/s in time should orientation be undertaken?

What do you think is a realistic timeframe for orientation? How many hours or sessions?

Education Component
During internship, compulsory terms are medicine, surgery and emergency medicine. Looking at the list in Appendix A, do you think terms in any of these disciplines should be priorities for postgraduate year 2 doctors who will be undertaking rural practice? Please identify your top 4, in no particular order of importance.

❑ Anaesthetics	❑ Medicine	❑ Psychiatry
❑ Emergency Care	❑ Obstetrics & Gynaecology	❑ Radiology & Ultrasound
❑ General Practice	❑ Paediatrics	❑ Surgery
❑ Indigenous Health (eg. AMS)	❑ Population Health (eg. CHS, TPHU)	

Why are these priorities?

For a formal education program being delivered for postgraduate year 2 doctors, how many sessions would it be feasible to conduct over the year? How frequent?

Now I'd like to identify specific topics that should be included in a formal education program, that address the ESSENTIAL knowledge and skills a junior doctor requires to practise competently in rural areas?

As this is a broad question I'd like to provide a starting point. This sheet identifies topics that are currently delivered in [Remote Area]. Do you think this program covers the essential topics? What topics need to be added and what topics could be left out? I would like you to bear in mind, the suitability of topics for the postgraduate year 2 level and also the urgency that remoteness may influence.

Discipline	Content / Topics
Anaesthetics	❑ ABG Analysis ❑ Septic Shock ❑ Airway management & intubation
Emergency	❑ Asthma - acute ❑ CPR, resuscitation incl paed ❑ C spine injury ❑ CVA - acute ❑ Eye Emergencies ❑ Head injuries ❑ MI ❑ Near Drowning Child
Indigenous Health	❑ Communicating with Indigenous patients (incl role of Aboriginal Liaison Officers)
Medicine	❑ Arrhythmias ❑ COAD ❑ DKA ❑ G.I. Bleeding ❑ Heart Failure ❑ NIDDM ❑ Pneumonia ❑ Reading ECGs
O&G	❑ Antepartum Haemorrhage ❑ Episiotomy ❑ Hyperemesis Gravidarum ❑ PV bleeding ❑ P.I.D. ❑ P.I.H.
Paediatrics	❑ Acute Respiratory (Asthma / Bronchiolitis / Croup) ❑ Child Protection Orders ❑ Dehydration ❑ Meningitis ❑ Otitis media, externa ❑ PUO ❑ Rashes ❑ UTI
Population Health	❑ Immunisation
Psychiatry	❑ Assessing suicide risk ❑ Depression ❑ Mental Health Act
Radiology	❑ Interpretation of general radiology
General practice	❑ Domestic violence ❑ Sexual assault
Surgery	❑ Acute abdomen ❑ Compound Fractures ❑ Crush / Detipping Injuries ❑ Punch Injuries ❑ Pancreatitis

46 topics

Are there any non-clinical topics that should be addressed in orientation or information provided?
PROMPTs: What about cultural awareness, self-help services, community services available, bush mechanics, driving a 4WD?

Currently there are several courses available which facilitate doctors attaining emergency and procedural skills, and also assist in preparation for rural practice. I would like to get your opinion of how useful you think these courses would be for junior doctors embarking on rural practice. On a scale of 1 to 5, (1 being very useful and 5 being not useful) how useful would it be for junior doctors to participate in the following courses? Please indicate if you are not aware of the course or could not comment.

1. *Pre-hospital trauma life support course*

   VU 1-----2-----3-----4-----5 NU ☐ NA ☐ Can't comment

2. *Advanced life support course*

   VU 1-----2-----3-----4-----5 NU ☐ NA ☐ Can't comment

3. *Early Management of Severe Trauma (EMST)*

   VU 1-----2-----3-----4-----5 NU ☐ NA ☐ Can't comment

4. *Advanced Paediatric Life Support (APLS) Course*

   VU 1-----2-----3-----4-----5 NU ☐ NA ☐ Can't comment

5. *QRMSA Emergency Medicine Week*

   VU 1-----2-----3-----4-----5 NU ☐ NA ☐ Can't comment

6. *QRMSA Rural Preparatory Program*

   VU 1-----2-----3-----4-----5 NU ☐ NA ☐ Can't comment

7. *QH Cultural awareness training (if aboriginal community)*

   VU 1-----2-----3-----4-----5 NU ☐ NA ☐ Can't comment

Do you know of any other existing courses that would be relevant for junior doctors in their preparation for rural practice?

R&R, ACADs, Admin only

That is all of the questions. I would like to thank you for taking the time to participate. The data from all of the interviews will be collated and used to develop a rural education program. This will then be available for your further comment. I will contact you when this is done. In the meantime if you have any questions please do not hesitate to contact me.

MEOs, DCTs, RMOs only

Finally, I would like to talk about the current programs that you (provide for PGY2s / participate in).

Current Programs
Can you outline details of your local training program? For example, number of sessions, length, format?

How many sessions are held regularly? Per week? _____

Length of sessions? _____

Format of sessions? _____

Other activities? Workshops etc. _____

Attendance rate? _____

How are the topics included in the program determined? _____

Do any of these have a rural emphasis? Please explain. _____

In your opinion, how well does your current program prepare junior doctors for rural practice?

That is all of the questions. I would like to thank you for taking the time to participate. The data from all of the interviews will be collated and developed into a program which will then be available for your further comment. I will be in contact when this is done. In the meantime if you have any questions please do not hesitate to contact me.

Appendix A

During internship, compulsory terms are medicine, surgery and emergency medicine.
Looking at the list, do you think terms in any of these disciplines should be priorities for PGY2s who will be undertaking rural practice? Why?

Terms

Anaesthetics / Intensive Care

Emergency Care

Indigenous Health (eg. Aboriginal Medical Service)

Medicine

Obstetrics & Gynaecology

Paediatrics

Population Health (eg. community health service, public health unit)

Psychiatry

General Practice

Surgery

Appendix B

Now I'd like to identify the ESSENTIAL knowledge and skills that a junior doctor requires to practice competently in rural areas, that should be included in the rural program?

As this is a broad question I would like to provide a starting point. This sheet identifies topics that are currently delivered in [Remote Area]. Overall, do you think this program covers the essential topics? What topics need to be added and what topics could be left out?

Please bear in mind, the suitability of topics for the postgraduate year 2 level and also the urgency that remoteness may influence.

Discipline	Content / Topics
Anaesthetics	❑ ABG Analysis ❑ Septic Shock ❑ Airway management & intubation
Emergency	❑ Asthma - acute ❑ CPR, resuscitation incl paed ❑ C spine injury ❑ CVA - acute ❑ Eye Emergencies ❑ Head injuries ❑ MI ❑ Near Drowning Child
Indigenous Health	❑ Communicating with Indigenous patients (incl role of ALOs)
Medicine	❑ Arrhythmias ❑ COAD ❑ DKA ❑ G.I. Bleeding ❑ Heart Failure ❑ NIDDM ❑ Pneumonia ❑ Reading ECGs
O&G	❑ Antepartum Haemorrhage ❑ Episiotomy ❑ Hyperemesis Gravidarum ❑ PV bleeding ❑ P.I.D. ❑ P.I.H.
Paediatrics	❑ Acute Respiratory (Asthma / Bronchiolitis / Croup) ❑ Child Protection Orders ❑ Dehydration ❑ Meningitis ❑ Otitis media, externa ❑ PUO ❑ Rashes ❑ UTI
Population Health	❑ Immunisation
Psychiatry	❑ Assessing suicide risk ❑ Depression ❑ Mental Health Act
Radiology	❑ Interpretation of general radiology
General practice	❑ Domestic violence ❑ Sexual assault
Surgery	❑ Acute abdomen ❑ Compound Fractures ❑ Crush / Detipping Injuries ❑ Punch Injuries ❑ Pancreatitis

46 topics

APPENDIX C. INTERVIEW PROFORMA MIDPOINT MEO/DCT

INTERVIEW PROFORMA

Mid-Point Monitoring of Project Implementation

Medical Educators / Directors of Clinical Training

Thank you for agreeing to participate in the trial of the *'Supporting Junior Doctors Going Bush'* project. As detailed in my email, the purpose of this interview is to gather information to monitor the extent to which you have been able to conduct the activities of the project.

The aim is to identify what aspects you have undertaken and determine what activities were feasible and how well they went. I would also like to discuss what activities were not feasible, what barriers and difficulties you faced and explore possible strategies to overcome these.

All information provided will be kept confidential and names will not be used in reporting or publications.

Firstly, can I please confirm your current position? Medical Educator / Director of Clinical Training

Hospital?_____ _____

How long have you been in your current position? _____ _____

How many of the postgraduate year two's, been required to do country relieving or rural terms this year?

_____

Can you tell me details about those doctors and their placements…

Where they QH scholarship holders, IMGs or general _____

Where did they go?_____

How long was their placement? _____

Are there guidelines? _____

Are there particular terms you 'keep' for postgraduate year two doctors? _____

How well do you think that the terms are preparing the junior doctors firstly for practice within the hospital and then secondly for practice in a remote setting? _____

Education
Who is primarily responsible for the content of education programs for pgy2s? _____

Do you have a direct input into the programs? Yes / No

Can you describe the educational activities currently available for pgy2s in your hospital?

_____

_____

I note that you have been able to implement ___ of the topics requested for the rural program…. **[Topics covered will be ascertained via a one page questionnaire for Medical Educators to complete prior to the interviews]**

How relevant have these topics been to the local group? _____

How well were they received in relation to other topics presented? _____

Was management in rural context included? _____

Were the resources provided able to be used? Were they useful? _____

Attendance _____

What are the barriers to implementing the educational sessions? _____

How do you think these could be overcome? _____

Is this feasible considering current levels of time and resources?_____

Courses
Are you aware / advised of upcoming procedural and skills courses offered by external organisations? For example, PHTLS and Rural Preparatory Program? Yes / No

If yes, do you actively promote these to your pgy2s? _____ Yes / No

How? _____

If no, do you think your pgy2s are aware of such courses? Yes / No

How many of your pgy2s do you know of that have participated in courses?_____

If yes…
In which courses did they participate? _____

What was the perceived quality / feedback? _____

What are the barriers for your doctors to attend? _____

How could these be overcome? _____

Finally just a few general questions about the 'Supporting Junior Doctors Going Bush' project...

How clear were the objectives of the project? Were you clear on what was expected?

Do you think the requirements / activities within the project were appropriate in order to meet the objectives?

What do you think are the benefits of a rural support program for junior doctors?

What are the barriers to such a program?

Do you have any suggestions or strategies for overcoming such barriers?

What additional support would you like to implement such a program?

Any other general comments?

That is all of the questions I have. Thank you very much for your time!

APPENDIX D. INTERVIEW PROFORMA ENDPOINT MEO/DCT

Hosp: Pos / Code:

INTERVIEW PROFORMA

END-Point Measures of Project Implementation

Medical Educators / Directors of Clinical Training

Thank you for agreeing to participate in the trial of the *'Supporting Junior Doctors Going Bush'* project. As discussed, this interview aims to obtain final outcomes of the project, focusing on its implementation and its impacts and also to identify any changes from the midpoint measures. All information provided will be kept confidential and names will not be used in reporting or publications.

Since we spoke in June, how many more PGY2s have been required to do country relieving or rural terms?

_____

Are these junior doctors going to any new locations? Yes / No

If yes, can you tell me details about those doctors and their placements…

QH scholarship holders, IMGs or general _____

Where did they go?_____

How long was their placement? _____

Did they receive any additional orientation to their rural placement before they left? When they arrived?

_____

Do you know what…

Other medical staff were on-site _____

Levels of supervision and support available _____

Private and / or public practice _____

There are four strategies that are part of the program, the first suggested appropriate term allocations, the second addressed orientation, the third was about education and the fourth was promoting attendance at courses.

In the mid-point interview, we talked about these in much detail. Can you describe any new activities or changes you have made since then [that relate to the program]?

_____

_____

Can you tell me about any new barriers that have emerged? _____

_____

How do you think these could be overcome? _____

_____

Overall, how well prepared do you think the PGY2s at your hospital are, for practice in a well-supported hospital setting?

_____

How well prepared do you think they would be for practice in a remote solo-doctor community [if they were required to do this]?

_____

The 'Supporting Junior Doctors Going Bush' project was really about trying to facilitate a minimum set of experiences to be accessible to junior doctors, particularly those who will be going into rural practice. Do you think the implementation of these strategies in your hospital, has had any impact on the junior doctors? Can you describe the impact?

_____

_____

_____

Can you describe anything you think should be added, changed or is not necessary in the current program?

_____

_____

_____

Any other general comments?

_____

_____

That is all of the questions I have. Thank you very much for your time!

APPENDIX E. QUESTIONNAIRE MIDPOINT MEO/DCT

QUESTIONNAIRE

Mid-Point Monitoring of Project Implementation

Thank you for agreeing to participate in the trial of the '*Supporting Junior Doctors Going Bush*' project. Further to my email, this brief questionnaire will provide information required for the interview. The purpose of the questionnaire and the interview is to gather general information and to monitor the extent to which you have been able to conduct the activities of the project. This component aims to collect data on characteristics of your current postgraduate year two doctors and identify what aspects of the educational program that you have been able to undertake. Within the interview I would like to explore what activities were feasible and how well they went. I would also like to discuss what activities were not feasible, what barriers and difficulties you faced and explore possible strategies to overcome these.

Please answer the following:

Your Hospital: _____

How many *postgraduate year two doctors* do you have in your hospital in 2004? _____

How many of these doctors completed their intern year within the hospital last year? _____

How many of this group hold Queensland Health Rural Scholarships? _____

How many are International Medical Graduates or Overseas Trained Doctors? _____

Which of the following topics, if any, have been covered in educational sessions available to your postgraduate year two doctors, to date in 2004? Please provide details of any subtopics within the topic areas that have been offered.

Covered	Not Covered	Topic Area	Details
☐	☐	A. Airway management	
☐	☐	B. Cardiac conditions	
☐	☐	C. Chest drains	
☐	☐	D. Cricothyroidotomy	
☐	☐	E. Envenomation	
☐	☐	F. Head injuries	
☐	☐	G. Intraosseous needles	
☐	☐	H. Radiology	
☐	☐	I. Patient stabilisation for transfer	
☐	☐	J. Trauma	
☐	☐	K. Asthma	
☐	☐	L. Assessing suicide risk	
☐	☐	M. Child abuse and protection orders	
☐	☐	N. Cryotherapy	
☐	☐	O. Diabetes	
☐	☐	P. Eye emergencies	
☐	☐	Q. Family planning	
☐	☐	R. Depression	
☐	☐	S. Perineal repair	
☐	☐	T. Prescribing	

Thank you!

Supporting Junior Doctors Going Bush – Midpoint Data Collection, June 2004

APPENDIX F. QUESTIONNAIRE ENDPOINT MEO/DCT

QUESTIONNAIRE

End-Point Monitoring of Project Implementation

Thank you for agreeing to participate in the trial of the '*Supporting Junior Doctors Going Bush*' project. This brief questionnaire will provide information required to measure outcomes of the project. The purpose is to gather general information and to monitor the extent to which you have been able to conduct the activities of the project, in particular the educational program. Please answer the following:

Your Hospital: _____

No of Beds: _____

Level of Services: _____

Total No of PGY2 Positions: _____

Please indicate which of the following topics, have been covered in educational sessions available to your postgraduate year two doctors, to date in 2004? Please provide details of any subtopics within the topic areas that have been offered.

Covered	Not Covered	Topic Area	Details
☐	☐	A. Airway management	
☐	☐	B. Cardiac conditions	
☐	☐	C. Chest drains	
☐	☐	D. Cricothyroidotomy	
☐	☐	E. Envenomation	
☐	☐	F. Head injuries	
☐	☐	G. Intraosseous needles	
☐	☐	H. Radiology	
☐	☐	I. Patient stabilisation for transfer	
☐	☐	J. Trauma	
☐	☐	K. Asthma	
☐	☐	L. Assessing suicide risk	
☐	☐	M. Child abuse and protection orders	
☐	☐	N. Cryotherapy	
☐	☐	O. Diabetes	
☐	☐	P. Eye emergencies	
☐	☐	Q. Family planning	
☐	☐	R. Depression	
☐	☐	S. Perineal repair	
☐	☐	T. Prescribing	

Thank you!

Supporting Junior Doctors Going Bush – Midpoint Data Collection, June 2004

APPENDIX G. INTERVIEW PROFORMA ENDPOINT RMOS

Hosp: Pos / Code:

INTERVIEW PROFORMA

END-Point

RMO

Thank you for agreeing to talk to me today. The purpose of this interview is to get your feedback about your experiences as a postgraduate year two doctor this year. Your hospital has been participating in a trial of the *'Supporting Junior Doctors Going Bush'* program. The aim of this program is to assist junior doctors in their preparation for rural practice. Whether you have or haven't practiced in a rural area is not important, I am really after what experiences you have had through your hospital and how well they have prepared you for practice. All information provided will be kept confidential and individuals will not be identified in reporting or publications.

STRATEGY 1

Firstly, I'd like to talk about the experiences you have had in your primary hospital this year. Can you tell me what terms you have undertaken?

1. 2. 3. 4. 5.

How satisfied were you with this term allocation? If not satisfied, what would you have preferred?

Did you have any input into your terms? Yes / No

How well do you think the clinical practice you experienced through these terms prepared you for practice within the hospital?

- Did you see a broad range of presentations?
- Do you feel you had enough hands-on management of patients and responsibility?

STRATEGY 3

Just moving on to the education on offer within the hospital. Can you describe the educational activities that were available for pgy2s?

Frequency of activities? _____

Teaching styles? _____

How relevant were the topics? _____

Did you have any input into the content of the programs? Yes / No If yes, what input did you have?

Was management in a rural setting included? _____

How regularly did you attend activities? eg. every week _____

Are there any barriers impacting on your participation? _____

How do you think these could be overcome? _____

STRATEGY 4

Focusing now on courses offered by external organisations, for example, PHTLS and Rural Preparatory Program. Were you aware / advised of upcoming procedural and skills courses?

Yes / No

Did you participate in any courses? Yes / No

If yes, which one/s? _____

If no, are there any that you would have liked to participated? Which ones? _____

What is your opinion of this course?

- Quality
- Relevance
- Worth the time and money

_____

Are there any barriers that make / made it difficult for you to attend?

_____

Do you have any ideas about how these could be overcome?

_____

RURAL EXPOSURE

Now I would like to talk about any experiences you did have this year in rural or remote locations, if any. Have you undertaken any country relieving or rural terms this year?

Yes / No If yes, where did you go and for how long?

Rural terms
(5 weeks or longer)

☐ None, go to all respondents preparedness

Location	Duration (weeks)

Country relieving
(less than 5 weeks)

☐ None, go to all respondents preparedness

Location	Duration (weeks)

Was this voluntary or compulsory? _____

Overall, were these rural experiences positive or negative? Can you provide examples.

_____

_____

Can you describe any difficulties you faced in relation to support and supervision?

Did you have to undertake private general practice? Yes / No If yes, was this a positive experience?

STRATEGY 2 (only for those who have gone rural)

Did you receive orientation for your rural placement, either before you left or when you arrived?

- ❑ No. Would would have been useful to know about before you went?
- ❑ Yes. Please comment on the usefulness of these activities in your preparation.

ALL RESPONDENTS PREPAREDNESS

Just reflecting on the past year now…

How well do you think the clinical practice you experienced in the terms that you completed [would prepare / prepared] you for practice in a rural or remote location?

How well do you think the education program [would prepare / prepared] you for practice in a rural or remote setting?

How well do you think the courses you completed [would prepare / prepared] you for practice in a rural or remote setting?

Have you heard of the 'Supporting Junior Doctors Going Bush' Program?

- ❑ Yes, continue.
- ❑ No, go to last question.

Have you accessed any of the information or resources provided through the Program?

- ❑ Yes, continue.
- ❑ No, go to third last question.

Can you describe what you accessed and how useful it was for you?

Is there anything that should be added, changed or removed from the program?

_____

On a scale of 1 to 6, 1 being very well and 6 being not well, overall, how well do you think the program will assist prepare and support junior doctors going into rural practice?

Very well					Not well
1	2	3	4	5	6

[Third Last Question] Were there any barriers to participating in the program or accessing the materials?

_____

_____

Do you have any suggestions or strategies for overcoming such barriers?

_____

_____

[Last Question] What do you think are / would be the benefits of a rural support program for junior doctors?

_____

_____

Finally, do you hold a Queensland Health Rural Scholarship? Yes / No

If yes, how satisfied are you with the scheme? _____

Can you tell me any specific issues or problems you have had? _____

_____

_____

Do you have any suggestions for improvements? _____

_____

_____

That is all of the questions I have. Thank you very much for your time!

APPENDIX H. QUESTIONNAIRE A (PRE-PGY1)

INTERN QUESTIONNAIRE A

For coding and matching purposes and to enable you to remain anonymous, could you please provide your mother's maiden name (name before married). _____

NOTE

For the purpose of this study, rural and remote is defined according to the 'Rural, Remote and Metropolitan Area' classification system. Rural centres include Mount Isa, Gladstone, Hervey Bay, Mackay, Rockhampton, Bundaberg, Toowoomba, Nambour and Cairns.

PLEASE ANSWER ALL QUESTIONS. TICK OR CIRCLE RESPONSE WHERE APPROPRIATE.

Section 1: Demographics & Rural Exposure

1. Are you: Male Female
2. In what year were you born? .....
3. In which town were you born? .....State/Country? .....
4. In which town/suburb did you live for MOST of your primary school years? .....
5. In which town/suburb did you live for MOST of your secondary school years? .....
6. Are you: Single Defacto Married Divorced Widowed Other.....
7. How many children do you have (if any)?.....
8. At which university did you complete your medical degree? .....
9. List any other tertiary degrees you hold? .....
10. Which scholarships did you, or do you, hold (if any)? .....
11. During medical school, in which rural towns or remote communities did you undertake placements (if any) and for how long?

Town / Community	State	Length (wks)

Town / Community	State	Length (wks)

Section 2: Training Preferences

1. At which hospital are you undertaking your intern year? .....
2. Was this where you wanted to undertake your intern year? Yes / No

   ⇒ a) If no, which hospital was your first preference? .....
3. Why did you want to undertake your intern year at your preferred hospital?

   .....
4. At which hospital would you prefer to undertake your junior house officer / 2nd year?

   .....
5. At this stage, do you intend to enrol in a vocational training program (ie. General Practice, surgery, physician, rural & remote medicine)? Yes / No / Undecided

   ⇒ a) If yes, which college? ..... / Don't know

6. Do you intend completing any time during your senior or principal house officer years in a rural hospital?

Very likely					Not likely	Don't know
1	2	3	4	5	6	

7. Do you intend completing any (non-compulsory) time during your registrar training in a rural hospital?

Very likely					Not likely	Don't know
1	2	3	4	5	6	

8. In the future (after any vocational training), do you intend to practise in a rural town for up to 5 years?

Very likely					Not likely	Don't know
1	2	3	4	5	6	

9. In the future (after any vocational training), do you intend to practise in a rural town for longer than 5 years?

Very likely					Not likely	Don't know
1	2	3	4	5	6	

10. In the future (after any vocational training), do you intend to work as a locum providing short term services in a rural town?

Very likely					Not likely	Don't know
1	2	3	4	5	6	

11. What factors are currently influencing your decision about where you intend to practise?

Section 3: Preparedness

1. On a scale of 1 to 6 as outlined below, please rate how well prepared, you would currently feel for:

	Very Prepared					Not prepared
a) Hospital-based practice in large town or city?	1	2	3	4	5	6
b) Community-based / general practice in large town or city?	1	2	3	4	5	6
c) Hospital-based practice in a (multi-doctor) rural / remote town?	1	2	3	4	5	6
d) Community-based / general practice in (multi-doctor) rural / remote town?	1	2	3	4	5	6
e) Practice in solo-doctor rural / remote town?	1	2	3	4	5	6

2. List activities or experiences, professional and personal, that have influenced your preparation to practise in these locations?

---

3. On a scale of 1 to 6 as outlined below, please rate how well prepared you would currently feel for:

	Very prepared					Not prepared
a) Living in a large town or city?	1	2	3	4	5	6
b) Living in a rural or remote town?	1	2	3	4	5	6
c) Living in an isolated community?	1	2	3	4	5	6

4. Identify experiences or activities, that have influenced your preparation to live in these locations?

Location	Experiences
a) Large town or city?	
b) Rural or remote town?	
c) Isolated community?	

5. Please rate to what degree you think the following activities have contributed to your current level of clinical skills and knowledge:

	Contributed a lot					Has not contributed
a) Medical school – lectures	1	2	3	4	5	6
b) Medical school – practical sessions	1	2	3	4	5	6
c) Medical school – city clinical placements	1	2	3	4	5	6
d) Medical school – rural clinical placements	1	2	3	4	5	6
e) Self-directed education (reading journals, texts)	1	2	3	4	5	6

6. Please list any other activities, courses or experiences, professional and personal, that have contributed to your current level of clinical skills and knowledge?

_____

_____

THANK YOU!!

Please return in the Reply Paid Envelope provided, by 31 January 2003.

Or post to:

Project Manager
PO Box 2572
Mount Isa Qld 4825

APPENDIX I. QUESTIONNAIRE B (PRE-PGY2)

QUESTIONNAIRE B

For coding and matching purposes and to enable you to remain anonymous, could you please provide your mother's name before she was married. _____

NOTE

For the purpose of this study, rural and remote is defined according to the 'Rural, Remote and Metropolitan Area' classification system. Rural centres include Mount Isa, Gladstone, Hervey Bay, Mackay, Rockhampton, Bundaberg, Toowoomba, Nambour and Cairns.

PLEASE ANSWER ALL QUESTIONS. TICK OR CIRCLE RESPONSE WHERE APPROPRIATE.

TRAINING PREFERENCES

1. **At which hospital are you undertaking your junior house officer / second year?**

.....

2. **Was this where you wanted to undertake your second year?** Yes / No

   ⇒ **a) If no, which hospital was your first preference?**.....

3. **Why did you want to undertake your second year at your preferred hospital?**

.....

4. **What are your intentions regarding vocational training?** (please tick one)

   - ❑ Yes, have enrolled in a college training program ? *go to Q5*
   - ❑ Yes, intend to enrol with a college and have decided which one ? *go to Q5*
   - ❑ Yes, intend to enrol with a college, but haven't decided which one yet ? *go to Q6*
   - ❑ No, don't intend to enrol ? *go to Q6*
   - ❑ Haven't decided yet ? *go to Q6*

5. **Which college?**

   - ❑ Anaesthetists
   - ❑ Dental Surgeons
   - ❑ Dermatologists
   - ❑ Emergency Medicine
   - ❑ General Practitioners
   - ❑ Medical Administrators
   - ❑ Obstetricians and Gynaecologists
   - ❑ Occupational Medicine
   - ❑ Ophthalmologists
   - ❑ Pathologists
   - ❑ Physicians
   - ❑ Physicians (Paediatrics & Child Health)
   - ❑ Psychiatrists
   - ❑ Public Health Medicine
   - ❑ Radiologists
   - ❑ Rehabilitation Medicine
   - ❑ Rural and Remote Medicine
   - ❑ Surgeons
   - ❑ Other _____

6. **Do you intend completing any time during your senior or principal house officer years in a rural hospital?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

7. **Do you intend completing any (non-compulsory) time during your registrar training in a rural hospital?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

8. **In the future (after any vocational training), do you intend to practise in a rural town for up to 5 years?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

9. **In the future (after any vocational training), do you intend to practise in a rural town for longer than 5 years?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

10. **In the future (after any vocational training), do you intend to work as a locum providing short term services in a rural town?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

11. **What factors are currently influencing your decision about where you intend to practise?**

_____

_____

PREPAREDNESS

12. **On the 1 to 6 scale outlined below, please rate how well prepared, you currently feel for:**

	Very Prepared					Not prepared
a) Hospital-based practice in large town or city?	1	2	3	4	5	6
b) Community-based / general practice in large town or city?	1	2	3	4	5	6
c) Hospital-based practice in a (multi-doctor) rural / remote town?	1	2	3	4	5	6
d) Community-based / general practice in (multi-doctor) rural / remote town?	1	2	3	4	5	6
e) Practice in solo-doctor rural / remote town?	1	2	3	4	5	6

13. On the 1 to 6 scale outlined below, please rate how well prepared you currently feel for:

	Very prepared					Not prepared
a) Living in a large town or city?	1	2	3	4	5	6
b) Living in a rural or remote town?	1	2	3	4	5	6
c) Living in an isolated community?	1	2	3	4	5	6

14. How well would you rate your current competency to <u>independently</u> manage the following, including performing procedures:

Emergency Care	Very Competent					Not Competent
Airway management	1	2	3	4	5	6
Cardiac conditions	1	2	3	4	5	6
Chest drain insertion	1	2	3	4	5	6
Cricothyroidotomy	1	2	3	4	5	6
Envenomation	1	2	3	4	5	6
Eye emergencies	1	2	3	4	5	6
Head injuries	1	2	3	4	5	6
Intraosseous needle insertion	1	2	3	4	5	6
Radiology interpretation	1	2	3	4	5	6
Stabilising patients for transfer	1	2	3	4	5	6
Trauma	1	2	3	4	5	6

General Practice	Very Competent					Not Competent
Asthma	1	2	3	4	5	6
Assessing suicide risk	1	2	3	4	5	6
Child abuse and protection orders	1	2	3	4	5	6
Cryotherapy	1	2	3	4	5	6
Diabetes	1	2	3	4	5	6
Family planning advice	1	2	3	4	5	6
Depression	1	2	3	4	5	6
Perineal repair	1	2	3	4	5	6
Prescribing	1	2	3	4	5	6

15. **Please tick which (if any) of the following courses you have undertaken in the last year.**
    - ❑ Advanced Life Support Obstetrics (ALSO)
    - ❑ Advanced Paediatric Life Support (APLS)
    - ❑ Early Management of Severe Trauma (EMST)
    - ❑ Pre-Hospital Trauma Life Support (PHTLS)
    - ❑ Emergency Medicine Week (Qld Rural Medical Support Agency)
    - ❑ Rural Preparatory Program (Qld Rural Medical Support Agency)
    - ❑ Other (please specify) _____

DEMOGRAPHICS

If you completed the similar questionnaire to this one in your intern year please ignore this section. If you didn't or you are unsure please answer the following.

16. **Are you:** Male Female

17. **In what year were you born?** ……

18. **In which town were you born?**..... **State/Country?**.....

19. **In which town/suburb did you live for MOST of your primary school years?**

.....

20. **In which town/suburb did you live for MOST of your secondary school years?**

.....

21. **Are you:** Single Defacto Married Divorced Widowed Other……

22. **How many children do you have (if any)?**……

THANK YOU FOR YOUR ASSISTANCE!!

Please return in the Reply Paid Envelope provided

by Friday 6 February 2004.

A project coordinated by:

Mount Isa Centre for Rural and Remote Health
Research Unit (Project 1)
James Cook University
PO Box 2572
Mount Isa Qld 4825

APPENDIX J. QUESTIONNAIRE C (POST-PGY2)

QUESTIONNAIRE C

For coding and matching purposes and to enable you to remain anonymous, could you please provide your mother's name before she was married. _____

NOTE

For the purpose of this study, rural and remote is defined according to the 'Rural, Remote and Metropolitan Area' classification system. Rural centres include Mount Isa, Gladstone, Hervey Bay, Mackay, Rockhampton, Bundaberg, Toowoomba, Nambour and Cairns.

PLEASE ANSWER ALL QUESTIONS. TICK OR CIRCLE RESPONSE WHERE APPROPRIATE.

TRAINING PREFERENCES

1. **Your primary hospital in 2004:** .....

2. **What terms did you undertake during the year?**

1. 2. 3. 4. 5.

3. **Overall, how would you rate your year at this hospital?**

Very good					Very poor
1	2	3	4	5	6

3a. **Would you recommend working at this hospital to others?** Yes / No / Maybe

⇒ **Why?** .....

.....

4. **What are your intentions regarding vocational training?** (please tick one)

- ❑ Yes, have enrolled in training program with a college ? *go to Q5*
- ❑ Yes, intend to enrol with a college and have decided which one ? *go to Q5*
- ❑ Yes, intend to enrol with a college, but haven't decided which one yet ? *go to Q6*
- ❑ No, don't intend to enrol ? *go to Q6*
- ❑ Haven't decided yet ? *go to Q6*

5. **Which college?**

- ❑ Anaesthetists
- ❑ Dental Surgeons
- ❑ Dermatologists
- ❑ Emergency Medicine
- ❑ General Practitioners
- ❑ Medical Administrators
- ❑ Obstetricians and Gynaecologists
- ❑ Occupational Medicine
- ❑ Ophthalmologists
- ❑ Pathologists
- ❑ Physicians
- ❑ Physicians (Paediatrics & Child Health)
- ❑ Psychiatrists
- ❑ Public Health Medicine
- ❑ Radiologists
- ❑ Rehabilitation Medicine
- ❑ Rural and Remote Medicine
- ❑ Surgeons
- ❑ Other _____

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6. **Do you intend completing any time during your senior or principal house officer years in a rural hospital?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

7. **Do you intend completing any (non-compulsory) time during your registrar training in a rural hospital?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

8. **In the future (after any vocational training), do you intend to practise in a rural town for up to 5 years?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

9. **In the future (after any vocational training), do you intend to practise in a rural town for longer than 5 years?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

10. **In the future (after any vocational training), do you intend to work as a locum providing short term services in a rural town?**

Very likely					Not likely	Don't know
1	2	3	4	5	6	

11. **What factors are currently influencing your decision about where you intend to practise?**

_____

_____

PREPAREDNESS

12. **On the 1 to 6 scale outlined below, please rate how well prepared, you currently feel for:**

	Very Prepared					Not prepared
a) Hospital-based practice in large town or city?	1	2	3	4	5	6
b) Community-based / general practice in large town or city?	1	2	3	4	5	6
c) Hospital-based practice in a (multi-doctor) rural / remote town?	1	2	3	4	5	6
d) Community-based / general practice in (multi-doctor) rural / remote town?	1	2	3	4	5	6
e) Practice in solo-doctor rural / remote town?	1	2	3	4	5	6

13. On the 1 to 6 scale outlined below, please rate how well prepared you currently feel for:

	Very prepared					Not prepared
a) Living in a large town or city?	1	2	3	4	5	6
b) Living in a rural or remote town?	1	2	3	4	5	6
c) Living in an isolated community?	1	2	3	4	5	6

14. How well would you rate your current competency to independently manage the following, including performing procedures:

Emergency Care	Very Competent					Not Competent
Airway management	1	2	3	4	5	6
Cardiac conditions	1	2	3	4	5	6
Chest drains	1	2	3	4	5	6
Cricothyroidotomy	1	2	3	4	5	6
Envenomation	1	2	3	4	5	6
Eye emergencies	1	2	3	4	5	6
Head injuries	1	2	3	4	5	6
Intraosseous needles	1	2	3	4	5	6
Radiology	1	2	3	4	5	6
Stabilising patients for transfer	1	2	3	4	5	6
Trauma	1	2	3	4	5	6

General Practice	Very Competent					Not Competent
Asthma	1	2	3	4	5	6
Assessing suicide risk	1	2	3	4	5	6
Child abuse and protection orders	1	2	3	4	5	6
Cryotherapy	1	2	3	4	5	6
Diabetes	1	2	3	4	5	6
Family planning advice	1	2	3	4	5	6
Depression	1	2	3	4	5	6
Perineal repair	1	2	3	4	5	6
Prescribing	1	2	3	4	5	6

15. Please tick which of the following courses (if any) you have undertaken in 2004.

- ❑ Advanced Life Support Obstetrics (ALSO)
- ❑ Advanced Paediatric Life Support (APLS)
- ❑ Early Management of Severe Trauma (EMST)
- ❑ Pre-Hospital Trauma Life Support (PHTLS)
- ❑ Emergency Medicine Week (Qld Rural Medical Support Agency)
- ❑ Rural Preparatory Program (Qld Rural Medical Support Agency)
- ❑ Other (please specify) _____

16. **Demographics**

Are you: Male Female

In what year were you born? ……

In which town were you born?..... **State/Country?**.....

In which town/suburb did you live for MOST of your primary school years?

.....

In which town/suburb did you live for MOST of your secondary school years?

.....

Are you: Single Defacto Married Divorced Widowed Other……

How many children do you have (if any)?……

THANK YOU FOR YOUR ASSISTANCE!!

Please return in the Reply Paid Envelope provided

by Friday 12 November 2004.

Research Unit (Project)
PO Box 2572
Mount Isa Qld 4825

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